

# IVAC2 Handbook for Norway FIR



effective 3 JAN 19

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## Maps

Selection of maps is available via the **MAPS** button in the top menu. Clicking this button will open the maps menu.

The maps menu contains several groups, accessible via the black buttons in the top. Each group contains a number of maps, which can be toggled on and off by using the buttons below. Note the **T** button next to each map button. For maps containing text labels, the text can be toggled on or off independently from the main map by using the **T** button.

Be aware that some maps, for example extended centrelines, are only visible when you zoom in far enough.

There are 1 NM between each marker dot on extended centrelines.

## Map groups

The ACC group allows you to highlight the various internal ACC and offshore sectors, used for low enroute helicopter traffic.

The TMA and TIA groups allow you to highlight the various TMAs (terminal control areas) and TIAs (traffic information areas) in the FIR.

The ENR group contains the following maps:

- **BDRY** – significant TMA boundary points for en-route navigation
- **VOR**, **NDB** – radio navigation aids for en-route navigation, which include the following navaid types: VOR, VOR/DME, VORTAC, DME and NDB
- **TACAN** – TACAN stations used for en-route navigation and terminal procedures
- **ARP**, **ARP [VFR]**, **ARP [H]** – reference points for all major aerodromes, VFR airfields and heliports/helipads in Norway
- **OBS** – air navigation obstacles in the FIR (note: only obstacles with an elevation of 500 ft or above are included)

The FRA group contains maps showing FRA (free route airspace) relevant points. These points are separated into three parts: **FRA [E/X]** – entry/exit points (*note: points valid for FL285 or below are marked with an asterisk*), **FRA [A]** – arrival points, **FRA [D]** – departure points.

The RTE group contains maps showing special reporting points on offshore helicopter routes (**OFF SPECI**) and military TACAN routes (**TACAN**).

The PRD group contains maps of permanent restricted and danger areas in the FIR. Note that these areas are always shown, and their text labels can be activated by clicking on the map (and not on the **T** button).

The AER group contains maps of the various gliding areas in the FIR. The first two letters in the map names represent the last two letters of the associated VFR airfield's ICAO designator.

The aerodrome groups, referenced by the last two letters of the aerodrome's ICAO designator, include one or more of the following maps:

- **VFR** – visual reporting points (VRPs)
- **NAV** – significant points and radio navigation aids related to approach procedures
- **SID, STAR** – significant points and radio navigation aids as well as a graphical depiction (*RNAV procedures, only*) for standard departure & arrival procedures, in each case followed by the runway ID (note: some aerodromes have separate procedures for helicopters, suffix “H”, and prop aircrafts, suffix “P”)
- **TAXI** – taxiway designators (note: become visible if you zoom in)

## Presets

Presets are a way to adjust the viewpoint and zoom level of the screen, and turn on or off multiple maps all in one go.

Whenever an ATC position is loaded the correct preset is loaded automatically.

It is possible to manually load a preset via the **PRESETS** button in the top menu.

There are seven preset groups containing a number of presets, which are described in the next chapter.

## Preset groups

The ACC group contains presets that are normally used when controlling on an ACC position, among them insets of foreign ACC sectors delegated to Norway Control, offshore ACC sectors and the Svalbard area.

The TMA and TIA groups contain insets of all terminal control zones and traffic information areas in the FIR.

The AFIS group contains insets of all traffic information zones.

The APP group contains presets designed for APP units which include insets of all control zones.

The SMR and GND groups are commonly used during normal controlling. Presets in this group allow for a quick and easy way to open a ground view for a certain airport. For example, clicking the **ENGM** preset opens a ground view of Oslo-Gardermoen (ENGM) airport, and clicking the **ENGM GA Area** preset opens a ground view of the general aviation apron.

## Labels

Within Norway FIR, NATCON labels are used at:

- ACC
- approach & departure
- aerodrome services

The following label types exist in the NATCON system:

- Airborne labels
  - Unconcerned
  - Concerned
  - Assumed
  - Released
- Ground labels
  - Arrival
  - Departure
  - Unknown

Each label looks different depending on whether it is selected or unselected. To select a label hover the mouse cursor over it.

*(Note: In the following chapters the labels used for ACC are described in detail. There are separate labels for approach and radar-supported tower units, however, these are based on the ACC labels and differ in the amount of the label fields.)*



## Label fields

The following label fields are used, and will be mentioned on the following pages. Refer back to this list when reading the next chapters.

AFL	Actual flight level (mode C level)
APOS	Arrival gate
* ASP	Assigned speed
CS	Callsign
* CFL	Cleared flight level
* CWP	Assigned heading, route or waypoint
DES	Destination aerodrome
DPOS	Departure gate
GS	Ground speed
OP_TXT	Operator text – a text field for remarks
* RWY	Departure runway
* SI	Current ATC sector (if label is not assumed) Next ATC sector (if label is assumed)
SID	Assigned SID (standard instrument departure route)
SQK	Transmitted SSR code (squawk code)
TYP	Aircraft type
WTC	Weight turbulence category (L/M/H/S)

\* = field will be blank on unselected labels if no value is set

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## Important label actions

Each field in a label can have a function. These functions can be accessed by either clicking, double clicking or right clicking a label field. Depending on the label state different actions will be available.

To **open the callsign menu**: click the transmitted SSR code (*unconcerned label only*) or callsign.

To **point out the track to all controllers**: right click the aircraft type (*not available for unconcerned labels*). This will draw a yellow box around the track, which can be seen by all controllers.

To **mark the track**: right click the callsign (*not available for unconcerned labels*). This will draw a green box around the callsign, which can be only seen by you.

To **open the flightplan**: click the destination field.

To **show the flightplan route**: right click the destination field.

To **send a text message** to an aircraft: open the callsign menu and click **TEXT** or hover the label and press **F7**.

Aircrafts which are CPDLC only (no voice) will be shown with a box around the callsign.

For such flights, automatic CPDLC messages will be sent whenever a cleared level, assigned speed or assigned heading is set, or when a transfer to the next ATC sector is initiated.

Incoming CPDLC messages are visible in the **TEXT IN** window, which you can open by clicking **TEXT IN** in the top menu. Note that incoming messages can be clicked once to turn them grey, as a reminder for yourself that the message has been dealt with.

## Unconcerned labels

An **unconcerned** label is a label of an aircraft that is not going to enter your airspace, or when it is not yet known to the system that the aircraft will enter your airspace. Unconcerned labels contain a minimal amount of information.

An unselected unconcerned label consists of:

```
SQK  
AFL, GS
```

A selected unconcerned label consists of:

```
SQK  
AFL, GS, SI  
DES  
OP_TXT
```

Note the **SQK** field will be shown in an orange warning colour if the flight is transmitting a generic code like 2000 or 7000, or an emergency code.

If an aircraft with an unconcerned label is going to enter your airspace at some point, you must set yourself as the next ATC sector. Do so by right clicking the **SI** field. This will move the label to the **concerned** state.

## Concerned labels

A **concerned** label is a label of an aircraft that is going to enter your airspace in the future.

An unselected concerned label consists of:

```
CS, CWP
AFL, GS, SI
CFL, ASP
```

A selected concerned label consist of:

```
CS, CWP, TYP
AFL, GS, SI
CFL, ASP, DES
OP_TXT
```

The concerned label gives you information you need to start planning the flight's section through your airspace. More detailed information like **COPN** (coordinated entry point) or **PEL** (planned entry level) is available via the flight lists (see respective section below).

If an aircraft is entering your sector from uncontrolled airspace you must send a CPDLC CONTACT message to let the pilot know they need to contact you. To do so, click the **CS** field and click the **CONTACT > (FREQ)** button.

If an aircraft is assumed by another ATC sector you must wait for this sector to transfer the aircraft to you. If you would like the previous ATC sector to transfer the aircraft right away double click the **SI** field. This will make ROF (request on frequency) appear in the label for the previous controller, reminding them to transfer the flight to you.

When the flight calls you (and never before) accept the transfer by double clicking the **CS** field. This will move the label to the **assumed** state.

## Assumed labels

An **assumed** label is a label of a flight currently assumed by you – basically, all flights on your frequency.

An unselected assumed label consists of:

```
CS, CWP
AFL, GS, SI
CFL, ASP
```

A selected assumed label consists of:

```
CS, CWP, TYP
AFL, GS, SI
CFL, ASP, DES
OP_TXT
```

The first thing you need to do when a label has been assumed is to set the next ATC sector. This is done by clicking the **SI** field and selecting the correct sector from the menu. If an aircraft will be leaving your sector into uncontrolled airspace no next sector should be set.

The cleared level, assigned heading/waypoint and assigned speed can be changed by clicking these respective fields. Note: in the cleared flight level menu **CA** means *cleared approach* and **VA** means *cleared visual approach*. **LND** can be set to indicate a flight has been *cleared to land*, **TGO** indicates a *clearance for touch-and-go*.

To assign a mode A (squawk) code to a flight double click the **CS** field.

For a flight arriving in or near your sector, you can set the arrival runway by right clicking the assigned heading/waypoint. To set a STAR (standard arrival route) double click the **CWP** field.

You can add a note to the label by clicking the **OP\_TXT** field. This note is visible to all controllers.

To transfer the label to the next ATC sector double click the **SI** field. Once the next sector accepts the transfer the label will be moved to the **released** state. If no next ATC sector is available, release the label by opening the callsign menu and clicking **RELEASE**.

ATC inputted data can be cleared prior releasing a target to uncontrolled airspace. To do so, either click on **DISPLAY** and then on **WIPE ON REL** in the top menu (*automatic method*) or press **ALT + W** while hovering the cursor over the label (*manual method*).

## Released labels

A **released** label is a label of a flight that was previously assumed by you, and that has now been transferred to the next sector or released to uncontrolled airspace.

An unselected released label consists of:

```
CS
AFL, GS, SI
```

A selected released label consists of:

```
CS, TYP
AFL, GS, SI
DES
OP_TXT
```

A released label only contains information that allows you to be aware of the flight. Since the flight will not enter your airspace again, you cannot change any of the values in the label.

## Ground labels

There are two general types of ground labels: labels for departing traffic and labels for arriving traffic.

An unselected departure label consists of:

CS
RWY

A selected departure label consists of:

CS, SQK
TYP, WTC, DES
RWY, SID
DPOS, OP_TXT

To set the departure runway click the **RWY** field.

An unselected arrival label consists of:

CS
----

A selected arrival label consists of:

CS
TYP, WTC
APOS
OP_TXT

To set the arrival gate for an arriving aircraft click the **APOS** field.



When an aircraft has not filed a flightplan or its arrival and departure aerodrome equal each other, e. g. in case of a local VFR flight, a label for unknown ground tracks is displayed.

An unselected unknown label consists of:

```
CS
RWY
```

A selected unknown label consists of:

```
CS
TYP, WTC, DES
RWY
OP_TXT
```

By default, ground labels are only shown if you zoomed in far enough to see the ground map of an airport. However, it is possible to see all ground labels by clicking the **GND** button in the top menu. This can be useful if you quickly need to scan for traffic on the ground at multiple airports.

Note that departure runway and arrival/departure gate can be set even if the label is not assumed, but you must assume the label if you want to enter anything in the **SID** or **OP\_TXT** field.

## Departure clearance

To issue a clearance via datalink to a departing aircraft on the ground first set the departure runway (see above) and then click the **SID** field. This will open the **DCL** (datalink clearance) window:

DCL - Datalink Clearance

Callsign: RYR3BC

Cleared to: EGSS

Runway: 01L B738/M

SID: TOR4A ALTN SID: TOR4A

Transition:

Squawk: 0354 ALL\_2

Next Freq: 118.300

Departure: ENGM ATIS: N

ATC RMK:

CLD:  
CLD 1211 181019 ENGM PDC 001  
RYR3BC CLRD TO EGSS OFF 01L VIA TOR4A  
SQUAWK 0354 NEXT FREQ 118.300 ATIS N

VOICE SEND DCL FPL CLEAR SID CANCEL

Fill out all required fields.

When completed, click **VOICE** if the clearance will be transmitted to the pilot by voice, or **SEND DCL** to send the clearance via datalink.

**Note:** Any error in the filed flightplan, such as wrong departure point or a missing equipment code, will make it impossible to send a **DCL** clearance. For flights that are not going to follow a SID the clearance must be issued manually.

## ATC information system

The ATC information system is a window containing different information useful when controlling. It can be accessed by clicking the **ATC INFO** button in the top menu.

The buttons on the right side of the window give access to different pages. To navigate on a page simply right click and select an option from the dropdown menu.

## EMERG

The EMERG page contains checklists to be used in different emergency situations.

## CLS

Allows you to look up the radio callsign of a flight by entering the 3-letter callsign code.

## LOC

Allows you to look up the name of an airport by entering the 4-letter ICAO designator.

## ATYP

The ATYP page makes it possible to look up performance information for different aircraft types.

## WX

Allows you to look up a current, looping weather radar imagery for Norway.

## NOTAM

The NOTAM window allows you look up NOTAMs valid for Norway FIR. Type in an airport ICAO designator and click [Search NOTAMs](#) or click [Get all NOTAMs](#) to view all NOTAMs in the FIR.

## LABELS

The LABELS window contains an overview of the different aircraft labels. You can hover your mouse cursor over each label field to see different label actions (click, double click, right click).

## ATC sectors

Every ATC sector has an unique sector code and a short sector ID.

Sector codes and IDs are visible in the ATC list, which can be opened by clicking the **ATC** button in the top menu. In the example below CH-APP is the unique sector code and CH is the sector ID.



SI	Short	Freq	Callsign
CH-APP	CH	119.800	Copenhagen Approach

The sector ID is shown in the **SI** field of a label when an ATC sector has been set as the next sector. For example, if CH-APP was set as the next ATC sector for a flight the **SI** field in the label would contain the letters CH. The following sector IDs are used in Norway FIR:

- Local ACC sectors (Norway Control) have the sector ID **ACC**.
- Bodo Radio has the sector ID **OB**.
- Foreign ACC sectors mostly have two-letter IDs:
  - Reykjavik Control and Iceland Radio: **RD**
  - Tampere Radar: **ES**
  - Copenhagen Control: **DK**
  - Copenhagen Information: **DK-IF**
  - Sweden Control (Malmo sectors): **MM**
  - Sweden Control (Stockholm sectors): **OS**
  - Sweden Control (combined sectors): **AA**
  - Scottish Control: **PX**
  - Murmansk Control: **UM**

- Regional approach and tower units use the last two letters of the ICAO designator followed by APP for approach, ARR for arrival, DIR for director, FIN for final, R for radar, G for ground or D for clearance delivery. Tower units have no suffix. In cases of splitted positions an additional suffix can be added. For example, **TC APP** is Tromso Approach, **GM GW** is Gardermoen Ground (west).
- Farris Approach has the sector IDs **FR E** and **FR W**.
- More Approach has the sector IDs **MO N** and **MO S**.
- AFIS units use the last two letters of the ICAO designator. For example, **GK** is Gullknapp Information, **HF** is Hammerfest Information.

## ATIS and voice communications

You can set up a datalink ATIS (D-ATIS) by clicking the **ATIS** button. Note that a detailed ATIS is only available for units where pilots would be expected to report an ATIS letter on first contact, i. e. only tower and approach units, and only at airports that have an ATIS in the real world.

AIRPORT	ATIS	TYPE	TA	TRL	PREVIEW
ENTC	K	ARR/DEP	7000	80	eu6.ts.ivao.aero/ENTC_TWR ENTC ARR/DEP ATIS K 0908Z EXP ILS APP ARR RWY 19 DEP RWY 19 TA 7000 / TRL 80 METAR ENTIC 280850Z 20012KT 9999 SCT012 BKN064 M01/M03 Q1025 NOSIG RMK WIND 2600FT //K  CHARTS ARE MANDATORY REPORT IF BACKTRACK REQUIRED
APPROACH	RWY	CONDITION	RVR		
ILS	19				
	RWY	CONDITION	RVR		
DEPARTURE	RWY	CONDITION	RVR		
	19				
	RWY	CONDITION	RVR		

OPS TEXT

charts are mandatory  
report if backtrack required

SAVE

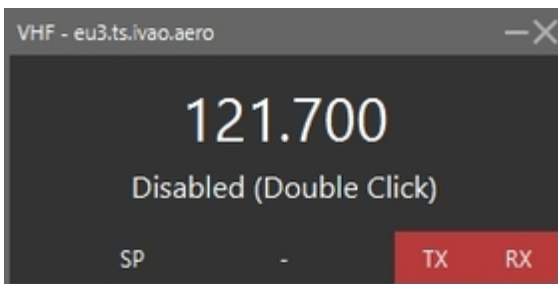
Fill out all required fields and click the **SAVE** button.



Access the voice communications panel (VCS) by clicking **VOICE** in the top menu (***note: not available if you choose the option to use the TS2 application***). The opened window should have a green background (like shown below).



If voice has been disabled, double click the frequency to reconnect:



In order to transmit on your voice channel press and hold the **CTRL** key (or equivalent key depending on your operating system). Note that the IVAC2 window **must** be in focus while transmitting, otherwise the transmission will not get through. While transmitting TX will light up in the VCS.

The VCS will automatically select your default audio device. If you wish to use another audio device you need to change your default device in your system setup.

## Flight lists

Flight lists are used to get an overview of flights for planning purposes. All flight lists are accessed by clicking **FLTLIST** in the top menu. The following lists are available:

### Sector list

The sector list shows all flights currently assumed by you. It is opened by clicking the **SL** button.

### Sector inbound list

The sector inbound list shows all flights where you are set as the next ATC sector. It is opened by clicking the **SIL** button.

### Departure list

The departure list shows departing flights from one or several aerodromes, or from a specific runway. By clicking the **DEP** button a filter window will open. Type in a departure aerodrome and/or runway to select which flights should be shown in the list. It is possible to show many aerodromes at once, for example, by typing “BI” in the **ADEP** field all flights departing from aerodromes whose location indicator start with “BI” will be shown.

Approach and tower controllers are encouraged to have a departure list with their aerodrome open at all times.

### Arrival list

The arrival list works like the departure list but for arriving traffic. It is opened via the **ARR** button.

## Holding list

The holding list shows all aircraft assigned to airborne holdings.

When instructing an aircraft to hold first set the holding fix as the cleared waypoint in the **CWP** field in the label. Then click the callsign of the flight and select **HOLD**. You can now open the holding list. A dropdown menu will appear, containing all the points where aircrafts are presently instructed to hold. Select a point and click **ok** to open the holding list.

When an aircraft is instructed to leave a holding click the callsign and press **XHOLD**.

## Appendix

### List of aerodromes

ID	ELEV (ft)	TFC	FUEL	RWY	DIM (m)	SFC	LGT
ENAL	70	IFR-VFR	JETA1	06-24	2314x45	ASPH	YES
ENAN <sup>MIL</sup>	46	IFR-VFR	F34 JP8	03-21 14-32	1671x45 3002x45	ASPH ASPH	YES YES
ENAS	131	IFR-VFR	NIL	12-30	808x30	GRAVEL	YES
ENAT	10	IFR-VFR	AV100 JETA1	11-29	2253x45	ASPH	YES
ENBL	1045	IFR-VFR	JETA1	07-25	1109x30	ASPH	YES
ENBN	25	IFR-VFR	AV100 JETA1	03-21	1438x30	ASPH	YES
ENBO	43	IFR-VFR	AV100 JETA1 F34	07-25	2794x45	CONCR	YES
ENBR	166	IFR-VFR	AV100 JETA1	17-35	2990x45	CONCR	YES
ENBS	490	IFR-VFR	JETA1	03-21	1000x30	ASPH	YES
ENBV	43	IFR-VFR	JETA1	06-24	1028x30	ASPH	YES
ENCN	57	IFR-VFR	AV100 JETA1	03-21	2035x45	ASPH	YES
ENDU	253	IFR-VFR	AV100 F34 JP8	10-28	2993x45	ASPH	YES
ENEV	85	IFR-VFR	JETA1	17-35	2812x45	ASPH	YES
ENFG	2696	IFR-VFR	AV100	15-33	2047x45	ASPH	YES
ENFL	37	IFR-VFR	JETA1	07-25	1264x30	ASPH	YES
ENGK	415	IFR-VFR	NIL	05-23	1260x30	ASPH	YES
ENGM	681	IFR-VFR	AV100 JETA1 F34	01L-19R 01R-19L	3600x45 2950x45	CONCR CONCR	YES YES
ENHD	87	IFR-VFR	JETA1	13-31	2120x45	ASPH	YES
ENHF	262	IFR-VFR	JETA1	05-23	932x30	ASPH	YES
ENHK	23	IFR-VFR	NIL	11-29	1039x30	ASPH	YES
ENHV	46	IFR-VFR	JETA1	08-26	920x30	ASPH	YES
ENKB	205	IFR-VFR	JETA1	07-25	2390x45	ASPH	YES

ID	ELEV (ft)	TFC	FUEL	RWY	DIM (m)	SFC	LGT
ENKR	282	IFR-VFR	AV100 JETA1	06-24	2115x45	ASPH	YES
ENLK	81	IFR-VFR	JETA1	02-20	1070x30	ASPH	YES
ENMH	42	IFR-VFR	NIL	17-35	970x30	ASPH	YES
ENML	10	IFR-VFR	AV100 JETA1	07-25	2220x45	ASPH	YES
ENMS	240	IFR-VFR	JETA1	16-34	1019x30	ASPH	YES
ENNA	25	IFR-VFR	AV100 F34	16-34	2788x45	CONCR	YES
ENNM	8	IFR-VFR	JETA1	07-25	935x30	ASPH	YES
ENNO	62	IFR-VFR	AV100 JETA1	12-30	1393x40	ASPH	YES
ENOL <sup>MLL</sup>	30	IFR-VFR	F34 JP8	15-33	3000x45	ASPH	YES
ENOV	243	IFR-VFR	JETA1	06-24	1070x30	ASPH	YES
ENRA	229	IFR-VFR	JETA1	14-32	871x30	ASPH	YES
ENRM	15	IFR-VFR	JETA1	04-22	950x30	ASPH	YES
ENRO	2053	IFR-VFR	AV100	13-31	1720x40	ASPH	YES
ENRS	10	IFR-VFR	JETA1	03-21	1030x30	ASPH	YES
ENRY <sup>MLL</sup>	173	IFR-VFR	NIL	12-30	2442x45	ASPH	YES
ENSA	32	IFR-VFR	NIL	04-22	920x30	GRAVEL	YES
ENSB	94	IFR-VFR	JETA1	10-28	2480x45	ASPH	YES
ENSD	196	IFR-VFR	JETA1	08-26	970x30	ASPH	YES
ENSG	1633	IFR-VFR	JETA1	06-24	1110x30	ASPH	YES
ENSH	29	IFR-VFR	JETA1	01-19	946x30	ASPH	YES
ENSK	13	IFR-VFR	JETA1	09-27	919x30	ASPH	YES
ENSO	161	IFR-VFR	JETA1	14-32	1460x30	ASPH	YES
ENSR	16	IFR-VFR	JETA1	15-33	1009x30	ASPH	YES
ENSS	42	IFR-VFR	JETA1	15-33	1145x30	ASPH	YES
ENST	58	IFR-VFR	JETA1	02-20	1409x30	ASPH	YES
ENTC	32	IFR-VFR	AV100 JETA1	01-19	2447x45	ASPH	YES
ENTO	285	IFR-VFR	AV100 JETA1	18-36	2809x45	ASPH	YES
ENVA	56	IFR-VFR	AV100 JETA1	09-27	2999x45	CONCR	YES
ENVD	127	IFR-VFR	JETA1	07-25	997x30	ASPH	YES
ENVR	15	VFR	NIL	FATO TLOF	31.5x56.2 RAD 17.5	ASPH ASPH	YES

<b>ID</b>	<b>ELEV (ft)</b>	<b>TFC</b>	<b>FUEL</b>	<b>RWY</b>	<b>DIM (m)</b>	<b>SFC</b>	<b>LGT</b>
ENZV	29	IFR-VFR	AV100 JETA1	11-29 18-36	2449x45 2706x45	ASPH ASPH	YES YES

## List of navigational aids

ID	NAME	TYP	FREQ	REL
AD	ANDA	L	288 KHZ	ENSD
ADV	ADVENT	NDB	326 KHZ	ENR
ALA	ALTA	NDB	358 KHZ	ENAT
AND	ANDØYA	VOR/DME	112.2 MHZ	ENR
ASK	ASKØY	NDB	360 KHZ	ENBR
ATA	ALTA	VOR/DME	117.4 MHZ	ENR
BAR	BARDUFOSS	TACAN	113.4 MHZ (CH 81X)	ENR
BDF	BARDUFOSS	VOR/DME	114.2 MHZ	ENR
BDO	BODØ	VOR/DME	117.55 MHZ	ENR
BJO	BJØRNØYA	NDB	316 KHZ	ENR
BL	BRINGELAND	L	374 KHZ	ENBL
BLA	BLÅENGA	DME	115.2 MHZ	ENGM
BN	BIRKELAND	L	345 KHZ	ENCN
BNA	BANAK	VOR/DME	114.4 MHZ	ENNA
BNK	BANAK	TACAN	111.1 MHZ (CH 47X)	ENR
BNN	BRØNNØY	VOR/DME	115.3 MHZ	ENR
BNR	BANAK	NDB	345 KHZ	ENNA
BOO	BODØ	TACAN	110.8 MHZ (CH 45X)	ENR
BRS	BREMSNES	NDB	371 KHZ	ENKB
BV	BERLEVÅG	L	399 KHZ	ENBV
BVK	BÅTVIK	NDB	362 KHZ	ENOV
BX	BÅTSFJORD	NDB	348 KHZ	ENBS
EKO	EKOFISK-L	DME NDB	115.3 MHZ 375 KHZ	ENR ENR
ERB	ERTSRUDBERGET	DME	116.25 MHZ	ENGM
EVD	EVENES	VOR/DME	117.35 MHZ	ENR
EVS	EVENES	TACAN	134.0 MHZ (CH 67X)	ENR
FLE	FLESLAND	TACAN	114.5 MHZ (CH 92X)	ENR
FLS	FLESLAND	VOR/DME	115.55 MHZ	ENR
FLO	FLORØ	VOR/DME	112.3 MHZ	ENR
FLR	FLORNES	NDB	380 KHZ	ENVA

ID	NAME	TYP	FREQ	REL
FLV	FLEINVÆR	NDB	374 KHZ	ENBO
FOR	FORSØL	NDB	318 KHZ	ENHF
FS	FJELLSTAD	L	396 KHZ	ENEV
FSK	FAUSKE	NDB	326 KHZ	ENR
GFC	GULLFAKS	DME NDB	113.65 MHZ 333 KHZ	ENR ENR
GR	GRUBEN	L	368 KHZ	ENRA
GRK	GRÅKALLEN	NDB	358 KHZ	ENVA
GRM	GARDERMOEN	VOR/DME	115.95 MHZ	ENGM
GUN	GUNNARSBERGET	DME	116.9 MHZ	ENSB
HD	HESTAD	L	414 KHZ	ENST
HE	HEDDAL	L	324 KHZ	ENNO
HEI	HEIDRUN	DME NDB	115.05 MHZ 340 KHZ	ENR ENR
HK	HASVIK	L	386 KHZ	ENHK
HL	HELLE	L	258.5 KHZ	ENSH
HLN	HELVES	NDB	308.5 KHZ	ENHV
HMF	HAMMERFEST	VOR/DME	112.4 MHZ	ENR
HN	HOVDEN	L	389 KHZ	ENOV
HTK	HESTVIK	NDB	378 KHZ	ENSR
HUM	HUMMELFJELL	TACAN	111.0 MHZ (CH 47X)	ENR
IL	ILSTAD	L	320 KHZ	ENBO
ISD	ISFJORD	NDB	304 KHZ	ENR
KBV	KOBBE	NDB	283 KHZ	ENTC
KG	KJERRINGNES	L	404 KHZ	ENSK
KIK	KIRKENES	VOR/DME	112.0 MHZ	ENR
KN	SKROVA	L	299.5 KHZ	ENSH
KPG	KAUPANGER	NDB	303 KHZ	ENSG
KRM	KARMØY	VOR/DME	115.15 MHZ	ENR
KV	KVALSUND	L	362 KHZ	ENTC
KVB	KVERNBERGET	VOR/DME	113.8 MHZ	ENR
LON	LONGYEAR	NDB	350 KHZ	ENSB
LR	LAKSFORS	L	335 KHZ	ENMS
LST	LISTA	TACAN	109.3 MHZ (CH 30X)	ENR
LVK	LEIRVIK	NDB	284.5 KHZ	ENNM
MES	MESNALI	VOR/DME	114.4 MHZ	ENR
MH	MEHAMN	L	353 KHZ	ENMH



ID	NAME	TYP	FREQ	REL
MOS	MOSJØEN	TACAN	113.9 MHZ (CH 86X)	ENR
MS	MOSJØEN	L	324 KHZ	ENMS
NA	NAMSOS	DME	108.5 MHZ	ENNM
NAL	NY-ÅLESUND	DME	112.5 MHZ	ENAS
NLK	NORDLISKAMPEN	DME	115.6 MHZ	ENGM
NMS	NAMSOS	NDB	329 KHZ	ENNM
NSV	SVEA	NDB	371 KHZ	ENSA
NYA	NY-ÅLESUND	NDB	414 KHZ	ENAS
ODD	ODDEN	NDB	365 KHZ	ENEV
ODR	ODDERØY	NDB	372 KHZ	ENCN
ORL	ØRLAND	TACAN	111.4 MHZ (CH 51X)	ENOL
OYA	ANDØYA	TACAN	109.1 MHZ (CH 28X)	ENR
PG	PORSANG	L	275 KHZ	ENNA
RBU	RAMBU	NDB	401 KHZ	ENRO
RG	TUNE	L	381 KHZ	ENRY
RS	RØROS	L	336 KHZ	ENRO
RST	RØST	NDB	338 KHZ	ENRS
RSY	RENNESØY	NDB	378 KHZ	ENZV
RVK	RØRVIK	VOR/DME	112.7 MHZ	ENRM
RYG	RYGGE	TACAN	113.5 MHZ (CH 82X)	ENRY
SAD	SANDSUND	NDB	348 KHZ	ENLK
SIG	SIGDAL	VOR/DME	117.7 MHZ	ENGM
SJA	SENJA	NDB	414 KHZ	ENDU
SKG	SKAGEN	VOR/DME	112.8 MHZ	ENSK
SKO	SKOLTEN	DME	114.9 MHZ	ENSB
SOA	SOLA	TACAN	112.25 MHZ (CH 59Y)	ENZV
SOG	SOGNDAL	VOR/DME	114.2 MHZ	ENSG
STD	STORD	VOR/DME	113.4 MHZ	ENSO
STG	STEGEN	NDB	369 KHZ	ENSD
STM	STRØMMEN	NDB	345 KHZ	ENRA
STO	STOKKA	VOR/DME	112.0 MHZ	ENST
STT	STØTT	NDB	317 KHZ	ENBO
SVA	SVENSHEIA	VOR/DME	112.1 MHZ	ENCN
TAR	TARVA	NDB	349 KHZ	ENOL

ID	NAME	TYP	FREQ	REL
TAT	TAUTRA	NDB	393 KHZ	ENML
TIL	TILLER	NDB	350 KHZ	ENDU
TOF	TORFJELL	DME	115.6 MHZ	ENSB
TOR	TORP	VOR/DME	113.85 MHZ	ENTO
TRO	TROMSØ	VOR/DME	113.8 MHZ	ENTC
TV	TALVIK	L	330 KHZ	ENAT
ULV	ULVINGEN	NDB	360 KHZ	ENBN
UTH	UTHAUG	NDB	366 KHZ	ENOL
VAE	VÆRNES	TACAN	109.6 MHZ (CH 33X)	ENVA
VAR	VARHAUG	NDB	319 KHZ	ENZV
VD	VADSØ	L	342 KHZ	ENVD
VEA	SVEA	DME	117.5 MHZ	ENSA
VFL	VARDEFJELL	VOR/DME	113.3 MHZ	ENMS
VIG	VIGRA	VOR/DME	115.8 MHZ	ENAL
VNG	VANGSNES	NDB	404 KHZ	ENSG
VOO	VOLLO	VOR/DME	114.85 MHZ	ENBR
VRD	VARDØ	VOR/DME	114.1 MHZ	ENSS
YG	ENGE	L	396 KHZ	ENRY
ZOL	SOLA	VOR/DME	116.85 MHZ	ENZV