



Stockholmradio
Aviolinx Communication & Services
(Part of the Aviolinx Group)

HF Radio Refresher Training



Refresher Contents

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Who is Stockholm Radio / Aviolinx

Stockholmradio or '**STO Radio**' is part of **Aviolinx AB**, and is situated at Nacka Strand, a few km east of Central Stockholm. We have been providing the International aviation community with HF radio communication services since the 1960's.

Our history as a maritime Coast Radio Station dates back to the early 20th century. When operating within STO Radio's service area of coverage, you can rely on our dependable, robust, long range HF Radio communications platform, which utilises a number of remote controlled, high-powered transmitters and associated receivers with various directional antennas at various locations.



STO Radio is available 24 hours day and 365 days a year.

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How does HF Radio work?

Radio communications in the HF band (High Frequency band) are bounced off the ionosphere. The ionosphere is a section of the upper atmosphere which is ionized by solar radiation. This phenomenon influences *radio propagation* as the conditions constantly change.

Since the ionosphere's existence is due to radiation from the sun striking the atmosphere, the effects on Radio communications in the HF-band will vary depending on the time of day (day or night), and also the time of year (winter or summer) as a result of solar radiation from sun spots.



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Stockholmradio HF Services

Operational Phone Patches (Air-to-Ground / Ground-to-Air)

Services open to all HF-equipped aircraft. Monitored frequencies (below) are intended for Operational Control traffic and for initial contact in case of other traffic.

Operational Message Relay

We relay Position Reports, ARR/DEP messages, Re-dispatch / Acceptance messages, etc. Individual templates with pre-assigned addresses for quick and safe transactions. Additional addresses easily included when required. Messages relayed via SITA/AFTN, Email, fax or phone.

MET information

We quickly provide crews with the latest METARs, TAFs, ASHTAMs etc for most major stations.

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Stockholmradio HF Services Cont.

Flight Planning Messages

STO Radio handle the following types of incoming messages: Type B: STOFWYF or AFTN: ESKRYFYW

- DLA (Delay)
- FPL (ATC Flight plans, ICAO format)
- Flight plan related messages:
- MVT and MVA (Movements)
- CHG (Change)
- ARR (Arrive)
- CNL (Cancel)
- DEP (Departure)

Medical Advice

Flight Crews requiring medical advice can be patched through to MedLink or another similar service of your choice.

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SELCAL

Whenever possible we suggest SELCAL guard to be maintained on a suitable frequency to ensure quick Ground-to-Air traffic. Please consult our Propagation Forecast and this document (see below) to select optimum frequency depending on location and time of day. Option to send a message (via SITA or Email) to your Operations/Dispatch advising them that the flight has Logged On.

Private Pilot Call Service

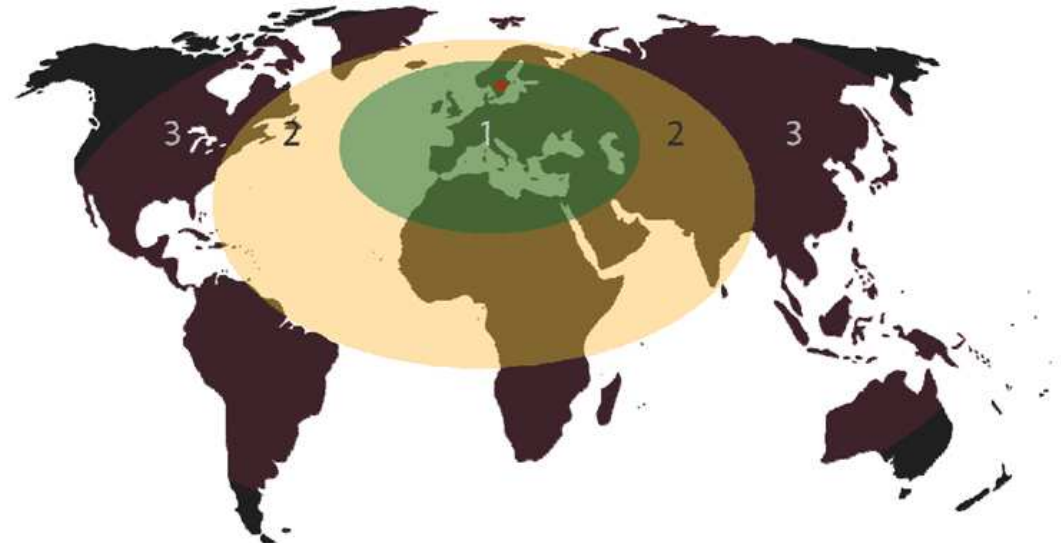
All you need to do is call us and we will create a Stockholm Radio Account for you, and that's it! You are then ready to start making private calls any time of the day or night 24/7/365. So if you want to call home and wish your daughter happy birthday, congratulate a loved one, or let your wife know when you will arrive home, why not try our Private Crew Calls service!

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Stockholmradio HF Coverage

HF radio conditions

This chart displays STO Radio's approximate service area that can be expected under fairly normal conditions. Of course it is possible to establish contact outside this area but this is very much dependent on: the changing conditions in the ionosphere, the current radio conditions and also the pilot's experience with using HF-radio. We can therefore not guarantee that communications will be viable with 100% readability at all times.



1 (Green) = Normally Very Good 2 (Yellow) = Normally Good 3 (Purple) = Occasional

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Stockholmradio HF Coverage Cont.

Note:

- During **night time** the frequencies 3494 / 5541 / 8930 mainly cover areas 1, 2 and 3.
- During **day time** the pilot must use the higher frequencies: 8930 / 11345 / 13342 / 17916 / 23210 in order to cover the same distance.

General rules:

- The higher the sun, the higher the frequency.
- The lower the sun, the lower the frequency.
- The longer the distance, the higher the frequency
- The shorter the distance, the lower the frequency

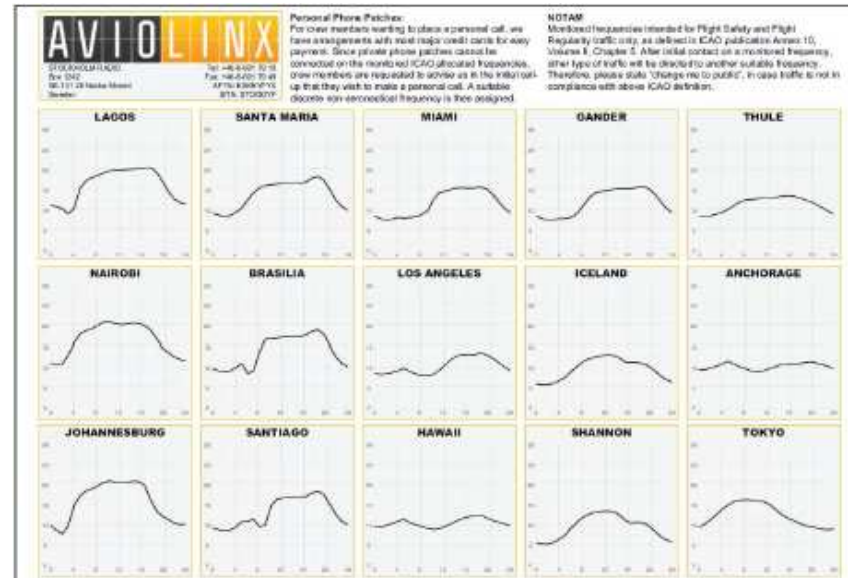


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Propagation Forecast

Using the most appropriate HF radio frequency is crucial when establishing contact with STO Radio.

The HF Propagation Forecast will help you choose the appropriate HF frequency given: the time of day/night, the atmospheric conditions and geographic location, by showing the most suitable HF frequency for communication with STO Radio.



Propagation Forecasts are updated every three months and are available for download as PDF from our website at www.aviolinx.com – see: 'HF Propagation forecast'. They may also be available from your navigation chart provider. Hourly updated radio propagation forecasts for Stockholmradio can also be found at our website, www.aviolinx.com under: 'Hourly radio propagation map.' These forecasts are produced by: IPS Radio and Space Services in Australia, and they are based on real time ionosphere conditions.

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Communicating with Stockholm Radio

The key to successful and reliable HF Radio communications is not only reliant on geomagnetic conditions and equipment. Pilot skills and experience are also very important, when adjusting to the conditions that can quickly change during the flight. (Always consult our HF Propagation chart, before contacting STO Radio).



Locate the graph on the Propagation Forecast that best corresponds to your position and choose the nearest STO Radio frequency. Be persistent when trying to establish contact on HF-radio. By persistently trying alternative frequency bands and repeating unsuccessful calls after a few minutes can significantly extend the approximate coverage area available.

HF radio should *always* be in USB mode (Upper Side Band) and *not* in AM mode. The radio talk must be as clear and concise as possible to avoid any misunderstanding. Use short sentences and where necessary repeat your message to ensure that it is received and understood. When contacting STORadio, always provide the following information:

- * **Flight number / Registration**
- * **Approximate geographic location**
- * **The HF frequency used to call**

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Communicating with Stockholm Radio

The radio operator to select a suitable transmitter and expedite good communications. Please allow 30 seconds for antenna positioning. Our operators at STO Radio listen for voice calls on six monitored kHz frequencies: 3494/23210, 5541, 8930, 11345, 13342, and 17916. The calls are audible on several directional loudspeakers with at least three loudspeakers for each frequency.

The SELCAL function of the HF-radio is important. We recommend that the pilot makes an initial SELCAL check with STO Radio when departing and remain on *SELCAL Guard* with STO Radio. It is not necessary to constantly listen to the noisy HF-frequency. The volume can be turned down, but not off. The pilot will then be alerted by an optical or acoustic signal when Stockholmradio has traffic for him/her. The chosen frequency may sometimes only be good for a limited period during the flight as the contact frequency varies depending on the time of day and geographic location. We recommend that you periodically call STO Radio during the flight to check if it is necessary to choose a new frequency.

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Communicating with Stockholm Radio

When STO Radio responds to a SELCAL check, our normal procedure is to send a message (via SITA or Email) to your Operations/Dispatch advising them that the flight has *Logged On* to STO radio and are contactable directly via SELCAL. Airlines that adopt this standard operating procedure rarely experience difficulties in contacting their flights through STO Radio. If SELCAL watch is not maintained on our frequencies, the crew may never be aware of STO Radio's efforts to call them. Also neglecting to adjust the frequency selection for SELCAL watch during flight will result in degraded or unavailable Ground-to-Air HF contact. This is especially important for long haul flights. Air-to-Ground calls under normal solar/geomagnetic conditions are usually the easiest to accomplish. The pilot selects a frequency from our HF Radio *Propagation Forecast* and Calls STO Radio.

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Frequently Asked Questions

Q: Why do I sometimes receive the transmissions from STO radio that are totally garbled?

A: The reason for this is most likely that your HF radio is set in "AM" mode. The setting should always be "USB" mode.

Q: Do I have to actually tune my HF radio in order to be able to receive your SELCAL transmissions?

A: The onboard SELCAL decoder is connected to the receiver of the HF equipment. That means you need to:

- Have the HF turned on.
- Be in USB mode.
- Have the frequency dials set on a suitable frequency (determined by your location and the time of day).

Note:
you don't have to tune the transmitter (by keying the microphone) until you actually need to call us.

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Frequently Asked Questions Cont.

Q: Why is it that you send me to another frequency when I read you perfectly OK on the first frequency?

A: The reason is simply to optimise the use of our equipment. We try to avoid blocking the monitored frequencies with phone patches in case other flights want to call in. Please remember to return to one of our monitored frequencies to resume SELCAL guard after completion of communications on the alternate frequency unless otherwise instructed.

Q: What are the charges for using STO Radio services?

A: Details of all charges are available at our website: www.aviolinx.com

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Contact Us

Postal address:

Aviolinx AB, STO Radio, P.O Box 1242, 131 28 Nacka Strand, Stockholm,
Sweden

Visiting Address:

Aviolinx AB, STO Radio, Cylindervägen 20, Nacka Strand, Stockholm, Sweden

E-mail: storadio@aviolinx.com

SITA: STOOOYF

AFTN: ESKRYFYX

Telephone: +46 8 601 7910

Fax: +46-8 601 7949

Website: www.aviolinx.com

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