



COAST GUARD AUXILIARY HF TELECOMMUNICATIONS PROGRAM POLICIES AND PROCEDURES

Section A. Auxiliary High Frequency (HF) Program

A.1 Introduction: The Coast Guard Auxiliary High Frequency telecommunications program is established for support of the purposes defined in Section A of this Annex.

A.2 Purpose. A High Frequency telecommunications program provides an infrastructure-independent communications system for use within and between Districts for support of Auxiliary operations during periods when normal communications resources are not available, that is, "Contingency" operations.

A.3 Activities. Stations and operators authorized to participate in this program may also:

1. Participate in CG Auxiliary HF net activity
2. Upon request of net control stations, participate in drills and other communications tests and training
3. When specifically designated by the Auxiliary HF Program Coordinator, participate in other government communications networks such as SHARES.
4. When specifically designated by CG commands or by the Auxiliary HF Program Coordinator:
 - a. Supplement CG communications assets
 - b. Provide "guard" communications services

A.4 Contingency Nets. Stations authorized to operate in the program are organized into a series of "nets" each of which covers a designated geographic area.

A.4.a NET STRUCTURE. Based on operational need, up to four levels of telecommunication networks (nets) may be established by the Auxiliary HF Program Coordinator

A.4.a.1 CG Auxiliary National Net - A National Net consisting of a net control station and representative stations from the four regions described below (A.4.d), plus participation from CAMSLANT and CAMSPAC;

A.4.a.2 CG Auxiliary Regional Nets - Four Regional Nets, one for each of the regions described below (A.4.d) consisting of a net control station and stations from the included Districts plus participation from CG Sector communications facilities;

A.4.a.3 - A District Net for each of the Auxiliary Districts consisting of a net control station and stations authorized as participants within the District plus CG Sector communications facilities.

A.4.a.4 - One or more Local Nets established to provide coverage in areas within an Auxiliary District.

A.4.b NET CONTROL STATIONS. Net Control Stations (NCS) and Alternate Net Control Stations (ANCS) will be designated by the Auxiliary Net Manager.

A.4.b.1 NET OPERATIONS. HF nets are directed nets, operating solely under the control of the NCS. Except for emergency operations, nets will only operate when called by the NCS Stations and operators shall follow the instructions of the NCS for all communications.

A.4.c LINKAGE TO OTHER COMMS ASSETS. A key function of the District Net and Local Net is to provide a telecommunications connection to Auxiliary VHF nets and Marine VHF nets as part of the communications link to local operational assets and Auxiliary and Coast Guard administrative and command structures.

A.4.d REGIONS. For administrative and operational purposes, the US is divided into four overlapping regions. These regions provide for logical connections between areas sharing similar telecommunications issues and risks and in addition create an administrative structure that is manageable with regard to span of control. The four regions are:

A.4.d.1 EAST COAST Region consisting of: D1(NR), D1(SR), D9(ER), D5(NR), D5(SR), and D7.

A.4.d.2 WEST COAST Region consisting of: D11(SR), D11(NR), D13, D8(WR), D14, and D17.

A.4.d.3 GULF COAST Region consisting of: D8(CR), D8(ER), D11(SR), and D7.

A.4.d.4 GREAT LAKES Region made up of D9(ER), D9(CR), D9(WR), and D1(NR).

A.5 MODES OF OPERATION In order to take advantage of current technology as well as to provide the best possible support to achieve the defined missions, three modes of operation will be utilized on designated HF channels. These modes are:

- Single Side Band Voice,
- Automatic Link Establishment,
- Data, including digital imagery

All HF frequencies authorized to the Auxiliary are available for any of these modes as long as power (maximum 1000 watts for fixed stations, maximum 200 watts for aircraft stations, and maximum 500 watts for all other stations) and bandwidth limits (less than or equal to 3 kilohertz) are observed. Each net session (A.4) will identify appropriate modes. Sections B and C of this document detail frequencies and operational procedures required for net activity.

A.6 ADMINISTRATION & MANAGEMENT. Because High Frequency communications by their nature have the potential of covering very large areas and causing unintentional interference with other networks as well as other communications services, the implementation and control of such systems will be centralized. Additionally, there is need for close coordination with the CG Office of Spectrum Management (CG-652) and with the Operations Division of the CG Office of Auxiliary (CG-5421). Therefore, management

functions of the HF program shall be administered by the Telecommunications Division of the National Response Department (TC Division).

A.6.a A Telecommunications staff member or members shall be designated as the Auxiliary HF Program Coordinator, with responsibility for the proper administration and operation of the program. The coordinator shall, under the direction of the DVC-RT and the National Response Department:

1. Work with the District DSO-CM's to determine program needs in an area and identify stations and personnel for the program
2. Develop and maintain the schedule of the telecommunications networks
3. Recommend qualified stations and operators for participation in the HF program
4. Maintain the list of qualified and certified operators and stations in the HF program (See Section D)
5. Coordinate operator and station listings with CG-652 and CG-5421.
6. Provide regular reports to the DVC-RT and the Response Department of the activities and health of the networks.

A.6.b A Telecommunications staff member or members shall be designated as the Auxiliary HF Nets Manager, with responsibility for network administration. The manager shall, under the direction of the Auxiliary HF Program Coordinator, the DVC-RT and the National Response Department:

1. Work with the District Staff Officers for Communications to determine personnel for NCS and ANCS appointment.
2. Assign NCS and ANCS personnel
3. Assist the Program Coordinator to develop and maintain the schedule of the telecommunications nets.
4. Develop, maintain and promulgate the frequency assignments and times for each network and area.

A.6.c FREQUENCY AUTHORIZATION. Access to high frequency channels will be coordinated by the Office of Spectrum Management (CG-652) of the CG Commandant's office, and, except for emergency communications, all HF operations will be conducted on channels authorized by CG-652. Use of any other HF frequencies (only when required by emergency conditions) must be reported to the Telecommunications Division of the National Response Department, citing frequencies and duration of use. Frequencies of operation are listed in Section C of this document and will be updated as needed.

A.6.c.1 DELEGATION OF AUTHORIZATION. The Telecommunications Division of the National Response Department (TC Division), under the direction of the Office of Spectrum Management (CG-652) will allocate HF channel usage to Regions, Districts and stations.

A.6.d STATION AUTHORIZATION. High Frequency telecommunications facilities are inherently more complex to install and operate than VHF stations and such stations must be identified in a list furnished to CG-622. Working with CG-652 the TC Division will maintain a central record of all stations that have been authorized to use HF channels and their assigned call signs.

A.6.d.1 STATION TYPES. Authorized stations may be of any of the following types: Fixed Land, Vehicle Mobile, Maritime Mobile, Aeronautical Mobile or Transportable. Each station must be inspected and approved prior to use (A.6.d.6).

A.6.d.2 CALL SIGN ASSIGNMENT. Because of the international nature of HF telecommunications, authorized stations must have a recognized call sign. The Telecommunications Division will assign such call signs to Auxiliary Radio Stations and be responsible for the proper operation of such stations.

A.6.d.3 CALL SIGN DESIGNATION If a single owner has more than one station, one call sign will be issued to the primary station (of whatever type).

- If the owner has a fixed land station, then the call sign will be used with no suffix
- Vehicle or maritime mobile stations will identify with the primary call sign with the designator of “mobile”, “maritime mobile”, “aeronautical mobile”, etc. as appropriate.
- For transportable stations, the station itself will be assigned a unique call sign.
- Secondary land stations licensed to the owner of a primary station may receive individual call signs when used for specific events or purposes. For example:
 - Stations used for district or division communications centers
 - Stations used for shared communications watchstanding

A.6.d.4 CALL SIGN ISSUANCE. The message authorizing an Auxiliary station in the HF service will contain the call assigned to that station, as issued by the Auxiliary HF Program Coordinator. This call sign will normally consist of the Facility identifier for the primary station of the owner, as assigned by DIRAUX. In most cases this will take the form “NFxxYY”, or “NMxxYY”. Where xx is a two or three digit numeric, based on the district, and YY are alpha characters. In any case where the district is represented by a single digit, a “zero” will be pre-pended. For example: Radio Facility **NF1AA** will be assigned the call: **NF01AA**.

A.6.d.5 Tactical call signs are authorized for use for specific events, drills and exercises. Tactical call signs will be assigned by the Auxiliary HF Net Manager or Auxiliary HF Program Coordinator as appropriate. A record of tactical call assignments will be maintained by the authorizing officer on a station-by-station basis.

A.6.d.6 Geographical call signs are also authorized for use where such call signs are already assigned to a station. For example, a fixed land station in D11(SR) is assigned (by the District DIRAUX) the call sign “Upland Radio One”. To avoid confusion, such call signs may be used with the addition of a recognized state or geographical region name. An example of such usage is: “Coast Guard Sector Los Angeles, this is Auxiliary Upland Radio One, Southern California, over”. When a geographic call sign is used, the assigned alphanumeric call sign shall be given in addition at the beginning and end of any sequence of communications.

A.6.d.7 STATION APPLICATION, In order to be qualified for HF program operation, qualified and currently certified telecommunications stations may submit to the Telecommunications Division, through the DSO-CM either:

- a copy of a current radio facility “Offer for use” (Form ANSC 7004) that includes HF capability, approved according to District policy and certified by the DIRAUX.
- A copy of a current, approved vessel or aircraft facility “offer of use” form (ANSC 7003 or ANSC 7005) listing HF capability.

If a single owner has more than one station, then each station must be inspected and approved separately.

These forms, together with supplemental HF station information shall be forwarded by the appropriate DSO-CM to the TC Division for review and assignment to use specific HF channels and for call sign assignment.

Primary responsibility for the inspection and approval of stations as participants in the Auxiliary HF Program shall reside with the DSO-CM and the DIRAUX of individual Districts. The Telecommunications Division of the National Response Department shall review each submission, and upon verification shall assign a call sign, add that station to the list of HF participants, and send a message verifying HF authorization to the applicant and to the appropriate DSO-CM and DIRAUX.

A.6.d.8 NATIONAL HF REGISTRY The Telecommunications Division shall be responsible for sending updates of the list of stations in the process of approval for HF operation to CG 622 prior to final authorization. See section D of this document for a sample of the document format and data.

A.6.d.9 AUTHORIZATION DETERMINATION. Determination of HF station authorization will be based on several specific factors to be delineated. Among these will be the equipment proposed for usage, demonstrated performance of the station, inspection criteria, and specific safety criteria such as RF exposure guidelines, power supplies and grounding. A set of inspection and evaluation criteria will be promulgated by the Telecommunications Division and DSO-CM's shall follow those criteria when approving stations.

A.6.d.10 AUTHORIZATION MESSAGE Each station authorized in the HF service will receive an authorization message from the Auxiliary HF Program Coordinator with the assigned call, authorized nets and permitted frequencies of operation, and duration of authorization. A copy of this message shall be sent to the DIRAUX in the district of operation, and to the DSO-CM and appropriate Net Managers.

A.6.e OPERATOR CERTIFICATION. Due to the international nature and complications of HF operation, certification of individuals as qualified High Frequency operators is required. Certification may be granted to members who:

1. Have successfully completed the Telecommunications Operator (TCO) Personal Qualification Standard (PQS), or;
2. Are recorded as having successfully completed the AUXCOM course prior to 01 August of 2008, and who
3. Are recommended by the DSO-CM in a district in which they operate.

A.6.e.1 OPERATOR REQUIREMENT Other than in emergencies, only certified Auxiliary HF operators or active duty/reserve Coast Guard personnel may operate an Auxiliary HF communications station. Other Auxiliary personnel or telecommunications

trainees may communicate over the radio system, while under the direct supervision of an Auxiliary HF operator.

A.7 HF OPERATIONS. Because the HF program is designed to support a variety of missions within the Auxiliary and within the CG, operations will be closely controlled. Regular net test sessions are designed to maintain operational capability of stations and operators and to continuously upgrade program participant's knowledge of high frequency propagation. To accomplish these goals, several regular "on-air" activities shall be held.

A.7.a HF NET OPERATIONS. Net sessions will be held on-air every two weeks, circumstances permitting. These will consist of:

1. A National Net session,
2. Four synchronized Regional Net sessions,
3. District Net session,
4. Local Net session (as appropriate).

A.7.a.1 HF NET MANAGERS. For each of the approved nets, a "Net Manager" will be appointed, and that individual will be responsible for scheduling net sessions, scheduling NCS/ANCS, and reporting the net results to the TC Division.

A.7.b NON-NET OPERATIONS. Casual use of the allocated channels is NOT authorized.

A.8 TRAINING Initially, certification of an individual member as the owner/operator of an HF station will be approved only if the approving authority is satisfied that the member has the basic required knowledge to successfully operate an HF station. However, as new members come into the program, there will be a need for specific training in HF operations and procedures. Additionally, as usage of new modes such as ALE and Data increases, a need for orientation and training will grow. Therefore specific training is mandated for all program participants. Such training will initially focus on: non-voice modes, HF propagation, activities and responsibilities of a Net Control Station, and criteria for successful inspection and approval of an HF station.

A.8.a TRAINING DELIVERY. Because "on-the-air" training is not authorized on contingency frequencies, the TC Division will produce and distribute workshops and power point presentations covering relevant issues. Where possible these will also be made available on the TC Division website for "self-paced" learning.

A.8.a.1 INTERNET BASED CONFERENCING. Each of the net managers (A.5.a above) will also be responsible for scheduling and conducting a web-based training session at least every 3 months.

Section B - CHANNEL UTILIZATION PROCEDURES

B.1. Authorization for frequencies from the CG HQ, Office of Spectrum Management, specifies the frequencies in terms of "channel center". For purposes of normal usage however, what is entered into a radio to be used is known as "Dial Frequency". Dial frequency is calculated (for Upper Sideband) by subtracting 1.5 kilohertz (kHz) from the center frequency.

B.1.a. For example, a frequency of 2125.7 kilohertz may be authorized. To properly set this frequency into a radio, the radio is set to 2124.2 kilohertz (2125.7 – 1.5), the “dial” frequency. The table gives both center and dial frequency for each channel.

B.2. In order to facilitate usage of the channels in terms of propagation and in terms of purpose, the thirty-three channels authorized have been combined into eight groups so that the channels in each group will have approximately the same propagation characteristics. The groups are labeled using the standard ICAO phonetic letters. The first group is known as “alpha”, the second “bravo”, etc.

B.3. For purposes of communications security and to provide a means of identifying a frequency channel on air without giving the actual frequency “in the clear”, each channel has been assigned a “designator”. The designator consists of three elements: the first is the group identifier, the second is the number corresponding to the megahertz of the channel, and the third is an alphabetic character that corresponds to the sequence of the channel **within** the group. For example, the channel that has the dial frequency of 8002.3 kilohertz carries the designator of “D-8-C” (spoken as Delta Eight Charlie) because it is in the fourth group (Delta), eight is the megahertz of the frequency, and it is the third channel within the group (Charlie).

B.4. In order to create a manageable HF system and to facilitate inter-District communications, as well as to group together Districts that share communications and natural disaster characteristics, four regions are defined to cover the Auxiliary Area of Operations. The overlap between regions is intentional (for example D9(ER) is in both the East Coast Region and the Great Lakes Region). These are defined as:

- WEST COAST (WC) – D11(SR), D11(NR), D13, D14, D17, & D8(WR)
- EAST COAST (EC) – D1(NR), D1(SR), D9(ER), D5(NR), D5(SR), & D7
- GREAT LAKES (GL) – D9(ER), D9(CR), D9(WR), & D1(NR)
- GULF COAST (GC) – D8(CR), D8(ER), D11(SR) & D7

B.5. Several functions for channels are identified in the table. The meaning of these is as follows:

- **Calling/ALE** – This frequency will be used as the primary calling frequency for the nets defined in the HF Program Procedures and will also be the primary frequency to monitor in the event of a situation which may require the use of the HF Channels for contingency operations. When ALE (Automatic Link Establishment) is implemented, these channels will be the ones used for sounding and link quality analysis.
- **Primary Working Frequency (Pri Wkg)** – this is the channel on which the defined nets (District, Regional and National) will normally operate.
- **Secondary Working Frequency (Sec Wkg)** – this is a channel in each group, and for each region, which may be used as an alternate to Pri Wkg in the event of interference. Additionally, this channel can also be used to establish a supplemental net in the event that the situation requires multiple net operations and it can also be used as a channel for the passing of traffic between a pair of stations where copy of the traffic is not required on the part of all stations.

- **Not Authorized** – this indicates that the specific channel is not authorized for use by a particular net or type of net. In most cases this is caused by propagation either because the frequency is unsuitable for the particular type of net or because use of the frequency has significant potential for causing interference to other users.
- **DATA** – this is assigned to only a small number of channels with the expectation that it will be used for “point-to-multi-point” broadcasts of contingency related information on a national basis.
- **Region Option** – in order to provide for unforeseen circumstances in specific Districts and Regions, such as local interference on particular channels and also to provide for channels which can be used for data (including digital imagery) transmissions or for District nets, channels in five groups are identified to be used for approved purposes at a Region’s or District’s option. Specific uses requested must be approved by the Auxiliary HF Program Coordinator.

B.6. The maximum power authorized for use on any channel is 1000 watts for fixed stations, 200 watts for aircraft stations, and 500 watts for all other stations. Such power shall be measured as output power at the output connector of the transmitter and shall be measured as “peak envelope power” (PEP). However, note that regulations require that the actual maximum should be no greater than that which allows the needed communication to take place.

B.7. The occupied bandwidth of any transmission on any of the authorized channels shall be no greater than three kilohertz (3 kHz).