

Civil Air Patrol National Communications Plan 3 June 2010

In accordance with CAPR 100-1, para. 2-2, this National Communications Plan is prepared annually after a review of region plans submitted earlier in the year. It is the basis for the 2010-2011 cycle of wing and region communication plans.

This plan addresses the overall structure of the Civil Air Patrol (CAP) Communications Network, duties and expectations of operators as well as national alerting and operational requirements.

Situation Analysis

The CAP national communications network is in a period of rebuilding.

The 1998 CAP Communications Strategic Plan began a process of moving CAP toward full compliance with National Telecommunications and Information Administration (NTIA) rules (47 CFR 300). The process was reaffirmed by the CAP National Executive Committee in 2002. The transition had the effect of removing large numbers of HF and VHF radios from the CAP Communications network because they were not compliant with NTIA rules. CAP leadership further made a strategic decision to first seek funding to rebuild the VHF-FM components of the network, including replacing all repeaters. Most funding for the VHF-FM rebuilding has been secured. During 2009, CAP Communicators across the country executed a massive project to replace all CAP VHF repeaters in the country, possibly the largest single operation undertaken by CAP since World War II.

One main focus of the overall CAP Communications system is tactical communications, defined as Mission Critical assets. Another focus is Command, Control, and Communications (C3), defined as Mission Essential assets. In both the VHF and HF categories of equipment, Mission Critical (tactical) needs must be met before Mission Essential (C3) needs may be addressed, according to the way the Table of Allowances (TA) is structured. Flexibility exists; however, so that equipment legitimately serving tactical needs may also be used for C3 functions.

An important lesson of recent major disaster response missions, including Hurricane Katrina, is that CAP needs to secure mission radio communications beyond the disaster areas where commercial infrastructure is inoperable. Long range communication to distant Incident Command Posts where the commercial infrastructure survives is necessary and is often best provided by HF radio. Historically HF radio has provided this capability to provide tasking across wing and region boundaries and its revitalization is a high priority for Operations and Communications staff at National HQ.

Role of the Network

The primary role of the CAP Communications Network is to support operational missions, including fulfilling validated customer requirements, and to conduct training and "confidence checks" in order to be ready to fulfill these missions. For operational missions, the structure

is adaptive, functioning in a peer-to-peer mode in which the stations best able to pass the traffic take the primary roles.

For training and confidence checking, the network is hierarchical, with multiple tiers.

All communications on CAP radio frequencies must comply with NTIA and CAP rules concerning technical standards, appropriate content, and must reflect the official business of CAP, the Air Force, the Department of Defense and/or partner agencies.

Confidence Checks

The term "confidence checks" as used in this plan refers to the requirements of the CAP Alerting System Communications Actions guide on the NTC website. The purpose of the CAP C3 System is to provide a survivable command and control capability in the event of the loss or impairment of public telecommunications networks. The CAP alert levels routinely match the Department of Homeland Security (DHS) alert levels. CAP Communications managers may, however, implement short-term elevation of the CAP alert level for specific missions, training or other reasons but will ensure coordination with command and notification to higher headquarters. Communications managers may modify the alert level for their own and subordinate units.

For some time, the Department of Homeland Security and the CAP Communications Alert Level have both routinely been at the "Yellow (Elevated)" level. In keeping with this alert level, each CAP radio station should check in to a net or otherwise make contact with another CAP station at *least once a week*. Communications managers should monitor confidence checks and may reassign radios where the confidence checks are skipped without good cause. Radios at unit headquarters, pre-deployed at inactive Incident Command Posts, and in vehicles are not exempt from this requirement. While logs of confidence checks are not required, the individual operator may wish to retain documentation.

Hierarchical Network Design:

The CAP Communications Network is structured hierarchically, with national, regional, wing, group, and local tiers. At each level, operators who are assigned corporate radio assets have certain responsibilities and expectations. Communications managers at each level also have certain responsibilities and expectations. In some cases, the nets of multiple tiers of the CAP structure may be held on the same frequency, such as region, wing and group HF nets, so coordination and scheduling of regular net meetings is vital

Although the overall network design is hierarchical, nothing in this plan prohibits operators from contacting other Automatic Link Establishment (ALE) and conventional (non-ALE) CAP stations across wing or region boundaries, as long as such participation is not disruptive to the functioning of higher priority traffic. For purposes of readiness, propagation testing and adaptive passing of traffic, such cross-wing and region operation is valuable.

According to CAPR 100-1 and 100-3, any time two CAP radios communicate with each other, it is a functioning of the "CAP Net." Even in routine administrative communication, when relaxed operating procedures are permissible, there is a structure outlined in CAPR 100-3 and a responsible Net Control Station (NCS). At other times, the net is used for formal, scheduled meetings of stations and operators with full procedures. Traditional concepts of "nets" consisting of several stations meeting at a specific time and frequency for group-relay of traffic do not adequately describe the functioning of CAP's growing HF-ALE system. The following discussion reflects the current status and functionality of a developing structure of HF-ALE operations, co-existing with conventional voice nets:

National Command Level HF-ALE

***CAPR 100-1 7-4b:** The National Command Net operates in the Automatic Link Establishment (ALE) mode. It is composed of stations specifically approved by the NTC using equipment provided for this purpose. Most of these stations are "message center" stations which relay message traffic between the national and region levels of the CAP net structure.*

The National Command level of the HF-ALE system, the "top level" of the CAP radio system, uses Automatic Link Establishment (ALE) radios to which a "suite" of frequencies is assigned, each with different radio propagation characteristics, and the radios automatically monitor which frequency is best to communicate with each other station in the net. Each region operates two ALE radios, serving as "message center" stations (see below), plus additional radios for Puerto Rico, Hawaii and Alaska. The ALE stations at the National Technology Center (NTC) and the National Operations Center (NOC) serve as the net control stations for the National Command level of the HF-ALE system. There are no scheduled formal National Command net meetings. Rather, ALE station operators are expected to attend their radios regularly and be ready for messages, as they may be received.

The mission of the National Command level of the HF-ALE system is to provide a survivable, commercial infrastructure-independent command and control communication (C3) link among regions and between regions and higher headquarters.

The specific functions of National Command level stations are:

- Provide a strategic communications tier of the communications network available for adaptive communications during high-level missions.
- Provide decentralized contact points to relay traffic between incident command posts and the NOC or other national CAP office.
- Conduct and report regular confidence checks, in accordance with the current CAP Communications Alert Level, and no less than once per week.
- Be available, as needed, for training.

Pending activation of region ALE frequency suites (see below) the following guidance applies to all stations operating on the National Command frequency suite (ALE Net #1):

1. Other than the two region stations and nationally designated stations, any CAP station may monitor the ALE suite, but should not sound in routine operations.
2. Pending release of region ALE channels, wings may use the national ALE suite (ALE NET #1) for actual missions and specific training events with the understanding that this use and active sounding will be for relatively limited periods of time. For ALE use during a training exercise, place a request several days in advance with CommPermissions@capnhq.gov. For actual missions, coordinate with the NOC.
3. Only NTIA compliant equipment with Joint Interoperability Test Center (JITC) certification may transmit on National and Region ALE suites of frequencies.
4. The NTC and National Headquarters determines and standardizes all ALE parameter settings, such as sounding interval.

National Conventional Voice HF Nets

CAPR 100-1, 7-4g.(2): *The daytime and nighttime communicators' nets are open to any communicator. The purpose of these nets is the free exchange of information. Questions of both a technical and administrative nature may be handled. Furthermore, the traffic originating on other nets may be handled on the communicators' nets to ensure widest dissemination.*

National-level HF frequencies assigned to Civil Air Patrol may be used for any legitimate CAP communications. Regularly scheduled conventional voice net meetings must be coordinated with the NTC and/or the Communications Team Leader, who will appoint or approve NCS assignments. Functions of scheduled National Communicators Net meetings on national frequencies may include, but not be limited to, passing formal traffic, training, confidence checks, equipment and propagation testing, readiness for Contingency operation (see below), and other legitimate CAP communications functions. Non-scheduled use of National frequencies for conventional voice communications should be on a non-conflicting basis; however unscheduled users of the frequency should relinquish the frequency to traffic with higher priority.

Region ALE and Conventional Voice HF Systems

CAPR 100-1, 7-4c: *The Region Command Net is composed of stations representing the region headquarters and each wing headquarters within that region. The purpose of this net is to pass traffic among the region headquarters and the wings.*

Region-level HF operations use frequencies assigned to Civil Air Patrol regions and may be used for any legitimate CAP communications.

Although not implemented as of the date of this plan, CAP is in the process of acquiring suites of HF frequencies to be assigned to each region. With the exception of some 2 mHz channels, these frequencies are expected to be unique to each Region. Because CAP is in the process of developing new standards and operating procedures for HF-ALE operation to better meet the tactical needs of today's missions, regions will have maximum flexibility in using the new HF frequencies, when they are assigned. It is anticipated that Regions will use all of their assigned frequencies to interconnect ALE stations within the Region. The Region may also authorize use of these frequencies for other types of nets and programs, including conventional voice nets, in keeping with policy about appropriate use. ALE operating parameters should use those shipped in the radio and/or standardized by the NTC and NHQ/DOS. ALE parameters for radios used on region frequencies should preserve all nationally-standardized ALE parameter settings, except that the region may experiment with sounding interval and with turning sounding on and off, as appropriate for the number of stations in ALE operation. Wings and Regions should report their experiences with ALE activities such as mobile and portable operations to the NTC and NHQ/DOS in after action reports.

ALE and conventional voice operations will likely be conducted on the same frequencies, so ALE operation and conventional voice nets must be coordinated with the region DCS-COMM or designee.

One of the primary anticipated missions of the Region ALE system is to relay mission traffic between mission operational areas with no commercial infrastructure and Incident Command Posts having commercial infrastructure for purposes of relaying WMIRS information and other mission traffic.

Other anticipated functions of Region ALE systems are:

- Provide communications between Incident Command Posts and forward bases where the commercial infrastructure has or may fail.
- Provide tactical communications for ground teams, and among forward bases and camps, outside the range of VHF-FM repeaters.
- Conduct and report regular confidence checks, in accordance with the current CAP Communications Alert Level, and no less than once per week.
- Be available, as needed, for training.

As appropriate, Region Deputy Chiefs of Staff for Communications may use ALE systems as the Region Command Net, or to take over certain duties of conventional (non-ALE) region voice nets (see below).

Functions of scheduled Region Voice Net meetings may include, but not be limited to, passing formal traffic, training, confidence checks, equipment and propagation testing, readiness for Contingency Nets (see below), and other legitimate CAP communications functions. Non-scheduled use of Region frequencies should be done on a non-conflicting basis; however unscheduled users of the frequencies should relinquish the frequency to traffic with higher priority.

Only NTIA compliant equipment with JITC certification may transmit on National and Region ALE suites of frequencies.

Wing Communications

CAPR 100-1, 7-4d: *The wing net is composed of stations representing the wing headquarters and subordinate units of the wing. The purpose of the wing net is to pass traffic among the wing headquarters and subordinate units.*

Wing-level HF operations use frequencies assigned to Civil Air Patrol regions and may be used for any legitimate CAP communications. ALE and conventional voice operations will likely be conducted on the same frequencies, so ALE operation and conventional voice nets, must be coordinated with the region DCS-COMM or designee. The Wing/DC will appoint or approve NCS assignments. Non-scheduled use of region HF frequencies by the wing should be on a non-conflicting basis, however unscheduled users of the frequencies should relinquish the frequency to traffic with higher priority. In a few cases, wing geographic size may allow the use of VHF frequencies as the primary frequency for operation of wing nets, in which case scheduled net meetings should be coordinated in keeping with the policies of the Wing DC.

Group Communications (if group structure is used)

CAPR 100-1, 7-4e: *A group net is composed of stations representing the headquarters of the group and its subordinate units. The purpose of the group net is to pass traffic among the group headquarters and subordinate units.*

Group-level operations use HF and VHF-FM frequencies assigned to Civil Air Patrol regions or VHF frequencies and may be used for any legitimate CAP communications. Regularly scheduled net meetings on HF must be coordinated with the Wing DC and the region DCS-Communications, or their designees, however the group DC or designee will approve NCS assignments. Regular net meetings on VHF-FM repeaters should be coordinated among all units served by the repeater, or as directed by higher headquarters. Non-scheduled use of Group Net frequencies should be done on a non-conflicting basis; however unscheduled users of the frequency should relinquish the frequency to traffic with higher priority.

Local Unit Communications

CAPR 100-1, 7-4f: *A squadron or flight net is composed of stations representing the unit headquarters and the unit's members. The purpose of the net is to pass traffic among the unit.*

Local unit nets generally operate on VHF-FM frequencies and may be used for any legitimate CAP communications. Regular net meetings on VHF-FM repeaters should be coordinated among all units served by the repeater, or as directed by higher headquarters. Non-scheduled use of VHF-FM frequencies should be done on a non-conflicting basis; however unscheduled users of the frequency should relinquish the frequency to traffic with higher priority.

Other Special Purpose Communications

***CAPR 100-1, 7-4g(3):** Other special purpose nets may be established as necessary to support CAP programs and activities.*

CAP HF, VHF, or Inter Squad Radio (ISR) frequencies may be used for special purposes, depending on the legitimate need of the particular CAP program or activity. Whenever possible, project officers and designated activity Comm officers should coordinate in advance with the appropriate Comm Manager overseeing the assigned frequency(s). For example, planned use of HF should be pre-coordinated with the wing and region Directors of Communication. Planned use of VHF-FM may only require coordination among local units served by a repeater.

Message Centers

Each of the functioning levels of the Communications system, as outlined above, should have one or more "Message Center Stations" (MCS). In most cases, this should be a primary and secondary MCS, whose operators have made the commitment to be available for HF-ALE communications and check-in regularly to scheduled voice net meetings of higher headquarters. For example, a wing MCS should be able to regularly attend the assigned HF-ALE radio and regularly participate in the appropriate region voice net, and should relay any traffic received into and out of the wing level net.

Ideal MCS operators can attend their stations for several hours a day and be available, as needed, on the days and times of the higher headquarters voice nets.

Mission and Contingency Nets

***CAPR 100-1, 7-4g(1):** When mission needs dictate other nets may be established at any level within the communications system. These nets may be composed of stations from any combination of wings and regions as necessary to support the mission. Contingency nets may be established to support the readiness posture of CAP. Examples of contingency nets include hurricane watch nets and other precautionary activations.*

Contingency Operation

Communications managers at each level have the authority to initiate conventional voice nets and/or ALE operation at their respective levels, placing CAP radio stations within their span of control on alert to be available for developing conditions that may result in mission activity. For example, a region DC could alert stations in the region to be on the air and ready in advance of a hurricane landfall elsewhere in the region. Generally, this should be done in consultation with the Commander, Net Control Station operators and other appropriate Communications and Operations staff. Ordinarily, activation and deactivation of contingency operation is done in association with changing the alert status of the CAP Alerting System.

Contingency operation may use ALE and/or conventional voice modes, uses formal communication procedures and may serve multiple functions, including confidence checks of equipment and propagation, compiling available resources, and readiness for immediate action. Contingency activation will *usually* be announced via the commercial infrastructure, such as email and phone tree alerts. In a communications stressed environment, even before formal mission activity is approved, individual operators should use their initiative to check routine net frequencies, in order to make contact with higher headquarters by ALE and/or conventional voice nets.

When Contingency and conventional voice nets share the same frequency, Net Control Stations should coordinate and, in most cases, allow the scheduled voice net to proceed, with the contingency operation resuming after conclusion of the scheduled net. Priority of traffic on the respective frequency will; however, be a consideration.

Mission Conventional Voice Nets

Mission conventional voice nets are structured by the Communications Unit Leader in coordination with the Incident Commander and other appropriate staff, in order to serve the operational and tactical needs of the mission.

Mission voice nets will *usually* be announced via the commercial infrastructure, such as email and phone tree alerts, as part of the overall CAP activation for a mission or mission Communications briefing. In extreme cases of stressed communications environments, when commercial infrastructure fails, or in other special circumstances, the only activation may be via radio.

As a result, individual CAP members holding custody of authorized CAP radio stations (corporate or personally owned) should use their initiative when special circumstances occur and check routine frequencies for contingency or mission nets. Examples of these special circumstances might be local disasters; hurricane, tornado, or other weather events; earthquakes; tsunami warnings; terrorist attacks; and other local, regional or national events that may prompt CAP mission activity, including deployment across wing, and region boundaries.

Mission ALE Nets

During 2010, CAP will develop and test standards and practices for use of ALE during actual missions. Because of the nature of ALE, the traditional structure of a net control station managing all communication on a single channel does not apply. Individual stations will “connect” to other stations, and stations at different distances from each other may use different ALE channels. Wings using ALE on actual missions should submit after action reports directly to the NTC and NHQ/DOS.

Operating Restrictions

7-15. Altitude Restrictions. National Headquarters may announce and modify altitude restrictions for operation on CAP VHF-FM frequencies. Where altitude restrictions exist,

they shall not be more limiting than required by federal frequency management agencies and international agreements.

8-6. Geographically Defined Restrictions. *Because of international agreements and other legal issues, CAP may need to restrict its operations on certain frequencies when in the vicinity of the International borders. Restrictions will be announced to directors of communications in the CAP-DC listserv and compiled in the secure NTC website. Operators entering those areas should make themselves aware of any restrictions in effect.*

Documentation of mandatory altitude and geographic restrictions is found on the password protected NTC website. There are no exceptions to these restrictions because they are the result of NTIA authorizations and international treaties and agreements. In order to streamline interoperability, wings and regions may set more restrictive policies.

Operator Expectations

Operators who are issued CAP Communications assets, or authorized for use of personally equipment, are expected to be careful stewards of the equipment and to be actively engaged in the Communications program. Each authorized CAP radio station (HF and VHF) should check into a net or otherwise make contact with another CAP station at least once a week, or as otherwise required IAW the status of the CAP Alerting System Communications Actions guide. Personnel with custody of radios at unit headquarters, pre-deployed at inactive Incident Command Posts, and in vehicles are not exempt from this expectation.

When special circumstances occur suggesting the possibility of CAP mission activity, even before formal mission activity is approved, individual operators should use their initiative to check routine net frequencies, in order to make contact with higher headquarters. Examples of these special circumstances might be local disasters; hurricane, tornado, or other weather events; earthquakes; tsunami warnings; terrorist attacks; and other local, regional or national events that may prompt CAP mission activity, including deployment across wing, and national boundaries.

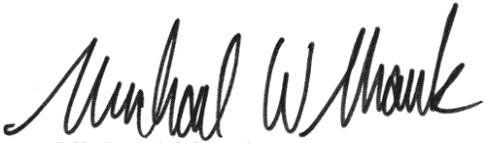
Management Expectations

The Director of Communications or Communications Officer at each level is expected to manage the Communication system and provide training in a way that complies with regulations and directives, and provides for optimum readiness on the part of CAP equipment and personnel assets.

In the 21st Century, the primary measurement of Communications Program success is no longer checking in to voice nets. Rather, the primary measure of readiness of the overall Communications system to support missions is the confidence checks required by the CAP Alerting System Communications Action guide. Communications managers should monitor confidence checks and may consider reassigning radios where operators skip the expected confidence checks without good cause.

Communication Managers should also take a leading role in identifying state and local agencies with which CAP is likely to require interoperability and work with the wing leadership to develop the MOUs or other written agreements, approved by National Headquarters, to provide for this interoperability in advance of mission need.

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