



# NATIONAL HEADQUARTERS CIVIL AIR PATROL

## CAP REGULATION 100-1

6 APRIL 2016

Communications

### RADIO COMMUNICATIONS MANAGEMENT

This regulation prescribes concepts, policies, and standards which govern the Civil Air Patrol (CAP) Radio Communications Program. Practices, procedures, and standards prescribed in this regulation are mandatory. All suggestions for modification and improvement of the program will be forwarded through the chain of command.

#### SUMMARY OF CHANGES.

This regulation has been updated to clarify recent governance changes, and clarifications of existing policy. Major changes include: revises guidance on communications plans, exercise planning, and communications reports; eliminates 180 day deadline for ICUT skills evaluation; expands guidance about spectrum management; requires updating of the online repeater directory to reflect sites in and out of service; addresses communications program leadership development; clarifies networks, traffic types, and logs; defines broadcast traffic; introduces the concept of calling channels; provides details about emergency communications; addresses inter-operation with military units; updates guidance about use of amateur radio by CAP members; addresses use of Part 15 devices such as WiFi; restricts ISR radio channels 10 and 11 from use by CAP; clarifies methods for CAP support to other agencies; expands guidance about use of memoranda of agreement; adds compliance items as attachment 1; and moves definitions of terms to attachment 2 and expands the list. **Note: Shaded areas identify new or revised material.**

TABLE OF CONTENTS	PAGE
<b>CHAPTER 1 - GENERAL INFORMATION</b> .....	<b>5</b>
1.1. Mission.....	5
1.2. Purpose.....	5
1.3. Utilization. ....	5
1.4. Principles.....	6
1.5. Network Structure.....	6
1.6. Maintenance, Testing and Measurements of Radio Communications Equipment. ....	6
1.7. Definition of Terms.....	8
1.8. Supplements/Operating Instructions/Waivers. ....	8
1.9. For Official Use Only Information. ....	8
<b>CHAPTER 2 - COMMUNICATIONS PLANS</b> .....	<b>9</b>
2.1. General.....	9
2.2. Communications Plan Requirements.....	9
2.3. Plan Content.....	9
2.4. Plan Approval. ....	10

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2.5. Review of Annual Plans.....	10
2.6. Special Planning.....	10
<b>CHAPTER 3 - CAP COMMUNICATIONS REPORTS .....</b>	<b>11</b>
3.1. General.....	11
3.2. After Action Reports.....	11
3.3. Annual Radio Communications Effectiveness Evaluations.....	11
3.4. National Repeater Directory.....	11
<b>CHAPTER 4 - COMMUNICATIONS AWARDS.....</b>	<b>12</b>
4.1. General.....	12
4.2. Awards and Citations.....	12
4.3. The Communicator Badge.....	12
4.4. The Senior Communicator Badge.....	12
4.5. The Master Communicator Badge.....	12
4.6. The Communications Patch.....	12
4.7. Cadet Eligibility for Communicator Badge/Patch.....	12
4.8. Communicator of the Year.....	12
<b>CHAPTER 5 - COMMUNICATIONS TRAINING AND AUTHORIZATION.....</b>	<b>14</b>
5.1. Communications Curriculum.....	14
5.2. Introductory Communications Users Training (ICUT).....	14
5.3. Authorization.....	15
5.4. CAPF 76.....	15
5.5. On-going Training.....	15
5.6. Operation of CAP Radio Equipment by Non-members.....	16
<b>CHAPTER 6 - COMMUNICATIONS MANAGEMENT .....</b>	<b>17</b>
6.1. Fundamental Requirements and Assumptions Used in Communications Management.....	17
6.2. Spectrum Management.....	17
6.3. User and Radio Authorization.....	18
6.4. Posting of Station Authorization.....	18
6.5. Revocation of Authorization.....	18
6.6. Communications Monitoring.....	18
6.7. Authorization Records and Inventory.....	19
6.8. Authorization of Practice Beacons for Locator Training.....	19
6.9. Communications Property Management.....	19
6.10. Authorization of VHF/FM Repeaters.....	19
6.11. Marking of CAP Repeaters and Radio Equipment.....	20
6.12. Special Permissions.....	20
6.13. National Programming Plan.....	22
6.14. Encryption.....	23
6.15. Communications Leadership Development.....	24
<b>CHAPTER 7 - RADIO STATION OPERATION AND PROCEDURES.....</b>	<b>25</b>
7.1. Requirements for Operating a CAP Radio Station.....	25
7.2. Safety.....	25
7.3. Emergency Electrical Power.....	25
7.4. Network Architecture.....	26
7.5. Operational Discipline.....	27
7.6. Station Logs.....	27
7.7. P-25 Digital Operation.....	28
7.8. Traffic Categories.....	28
7.9. Security of Transmitters.....	28

7.10. Transmitter and Antenna Testing.....	28
7.11. Out-of-Wing Operation.....	28
7.12. Inter-Wing Traffic.....	28
7.13. Station Identification.....	29
7.14. Interference Reporting Procedures. ....	30
7.15. Altitude and Geographical Restrictions.....	31
7.16. Relay of Communications Traffic .....	31
<b>CHAPTER 8 - VHF OPERATION.....</b>	<b>32</b>
8.1. Concept of Operations. ....	32
8.2. National Programming Plan.....	32
8.3. Simplex Operations.....	32
8.4. Repeater Operations.....	32
8.5. Repeater Management. ....	34
8.6. FM Digital Communications. ....	35
8.7. Disposal of Repeaters .....	36
<b>CHAPTER 9 - FREQUENCY UTILIZATION .....</b>	<b>37</b>
9.1. CAP Frequency Policy.....	37
9.2. Frequency Utilization.....	37
9.3. VHF-FM Assignments.....	37
9.4. HF Assignments.....	37
9.5. National Reserve Channels.....	37
9.6. Channel Priority.....	38
9.7. Calling Channels.....	38
9.8. Temporary Authorizations.....	38
9.9. Radio Net Schedules.....	38
9.10. Intra-Squad Radios (ISR).....	38
9.11. Family Radio Service (FRS).....	39
9.12. General Mobile Radio Service (GMRS).....	39
9.13. FRS/ISR Procedures .....	39
9.14. Limited Support for Amateur Radio Training. ....	40
9.15. Cellular Telephone Use.....	40
9.16. Emergency Communications.....	40
<b>CHAPTER 10 - CAP FREQUENCY SPECIFICATIONS .....</b>	<b>41</b>
10.1. Technical Requirements.....	41
10.2. Standards for Radio Stations.....	41
10.3. Frequency Measurement.....	41
10.4. Transmitter Power.....	42
10.5. Data Frequencies.....	42
<b>CHAPTER 11 - INTERAGENCY OPERATIONS .....</b>	<b>43</b>
11.1. General.....	43
11.2. Communications Inter-Operability with military units.....	43
11.3. Use of Amateur Radio Service by CAP.....	43
11.4. Part 15 Devices.....	44
11.5. National Communications System Shared Resources (SHARES) HF Radio Program.....	44
11.6. FEMA National Emergency Communications Network (NECN).....	45
11.7. CAP Participation in Government Agency Communications Programs.....	45
11.8. Liaison Radios.....	45
11.9. CAP Support to Other Agencies.....	46
11.10. Programming and Use of Interoperability Frequencies.....	46

11.11. Memorandum of Understanding ..... 47  
Attachment 1 COMPLIANCE ELEMENTS ..... 48  
Attachment 2 DEFINITION OF TERMS..... 51

## Chapter 1 - GENERAL INFORMATION

**1.1. Mission.** The mission of the Civil Air Patrol (CAP) Radio Communications Program is to meet the validated communications requirements of internal and external customers. Validation consists of approval by CAP Command and/or the Air Force. This mission is accomplished by strong planning to organize and maintain a reliable, integrated, point-to-point, air-to-ground, and ground mobile radio capability in support of the missions of CAP. Throughout this regulation, the term “Communications” refers to radio communications.

1.1.1. **Emergency Services.** Emergency Services is the primary user of the CAP Communications System. Most Communications Program support provided to the Emergency Services Program is tactical in nature.

1.1.2. **Cadet Program.** The Cadet Program is an important user of the CAP Communications System. Support provided to this mission is both tactical and administrative in nature.

1.1.3. **Aerospace Education (AE).** While not as heavy a user of the CAP Communications System, AE is no less important. Support to this mission is primarily administrative in nature.

**1.2. Purpose.** The primary purpose of CAP communications is to provide internal communications capabilities; to provide commanders with the means to conduct the missions of CAP both during normal conditions and when commercial infrastructure is unavailable or unsuitable, including commanders in the organizational chain of command, operational mission chains of command, and special activity chains of command. The CAP communications system provides a continuity of operations capability when commercial infrastructure fails, such as allowing commanders, at each echelon, the ability to communicate with superior and subordinate commanders. In addition, the CAP communications system may also provide support to “customer” agencies where it does not conflict with the primary purpose. All message traffic must be of, or pertaining to, the business of Civil Air Patrol or its customer agencies.

**1.3. Utilization.** Communications facilities of CAP are used in support of many operations including:

1.3.1. **Operational Missions.** The Communications Program supports Homeland Security, search and rescue, emergency preparedness, disaster relief, and other operational missions; augments existing communications services in the event of actual natural disasters, acts of terrorism, or other manmade disasters; and supports the U.S. Air Force.

1.3.2. **Flying.** The Communications Program provides messages on CAP aircraft movements, aircraft landings, and other information related to the safety of lives and property. This category also includes ground-to-air communications with in-flight aircraft.

1.3.3. **Administration.** In addition to CAP’s operational missions, the Communications Program will support all legitimate functions of CAP.

1.3.4. **Training.** The Communications Program provides familiarization and practice courses in CAP radio communications procedures and demonstrates techniques of air-to-ground, point-to-point and network operations. Some of this Communications Program training is prerequisite for tasks and accomplishments in the Emergency Services program.

1.3.5. **Support to Federal, State, and Local Agencies.** Communications supports federal, state, and local agencies, either on behalf of the Air Force (to federal agencies), or in CAP’s

corporate status (to state and local agencies) when that support does not conflict with internal command and control needs.

**1.4. Principles.** To be effective in accomplishing its mission, the CAP communications system is designed to follow certain principles. These principles are the guiding criteria for the planning and operation of CAP communications systems, networks and facilities. These principles are:

**1.4.1. Scalability.** A well-engineered communications system with proper operating procedures has the ability to meet the operational needs of small missions or large missions with the same level of performance. As mission size and complexity grows, the transition is seamless, not requiring users to change their mode of operation.

**1.4.2. Intra-Operability.** A properly engineered communications system supports users anywhere in the system without requiring them to adapt to local variations. The most demanding CAP missions involve users from multiple wings and regions. Such demanding missions require immediate communication support, without delays for radio programming and learning local procedures. Local variations reduce effective and efficient intra-operability.

**1.4.3. Inter-Operability.** Inter-operability is the ability to cooperate with partner agencies, achieved primarily through advance planning. It is seldom necessary for every user from every agency to be able to communicate directly during a joint mission. Engineered correctly, CAP works with other agencies to plan where cross connects among the partner agencies' independent systems will be most beneficial to mission success.

**1.4.4. Survivability.** In many instances, CAP goes to work when the commercial infrastructure fails or is over-tasked. For this reason, the communications systems must survive when other resources fail. Emergency power, backup antennas, and standby stations are all good examples of planned survivability.

**1.4.5. Security.** The CAP communications system must support the operational and communications security requirements of internal and external customers in order to deny unauthorized persons access to sensitive information being transported through the CAP communications system. This is accomplished both with secure equipment and proper operational procedures.

**1.5. Network Structure.** Only through planned organization and proper utilization can a communications system function to its maximum potential. In High Frequency/Automatic Link Establishment (HF/ALE) networks, that organization is achieved through effective system engineering and proper application of operating procedures. In voice networks, that organization is achieved through correct application of directed nets and free nets. Network structure is implemented by Net Control Stations (NCS) and Alternate Net Control Stations (ANCS).

**1.6. Maintenance, Testing and Measurements of Radio Communications Equipment.** Since the communications and electronics knowledge of the average CAP radio operator is normally limited to proficiency of radio operations, the recruitment of technically qualified personnel is highly encouraged. All transmitter servicing, testing or maintenance adjustments, or other operation which may affect the proper operation of the station shall be made by, or under the immediate supervision and responsibility of, a qualified technician. Programming of radio equipment does not require a fully qualified technician, as long as the member doing the programming is authorized by the wing director of communications (DC) or higher. See paragraph 6.12.4. for special requirements applying to maintenance and other work on CAP repeaters. For equipment other than repeaters, the following standards apply:

1.6.1. The minimum standard for qualification will be a General Radiotelephone Operator License or equivalent certification. The National Association of Business/Emergency Radio (NABER) certificate, Association of Public Safety Communications Officers (APCO) certificate, or Society of Broadcast Engineers (SBE) certificate are examples of acceptable certification. Persons in certain military specialties may also be authorized to service CAP communications equipment. In all cases, approval for use of local technicians doing more than basic preventative maintenance must be received in advance via the CommPermissions process IAW para. 6.12.1.1.

1.6.2. All maintenance personnel, authorized under this regulation, are responsible for ensuring that all equipment serviced by them or under their supervision is functioning properly and within the required specifications prior to being returned to service.

1.6.3. Communications equipment provided through National Headquarters will not be modified in any manner without prior approval via the procedure in paragraph 6.12. Approved modifications not requiring permission will be documented and posted in the Communications section of eServices. Modifications are defined as:

1.6.3.1 The alteration or removal of components provided as part of the originally issued system or package design.

1.6.3.2 The interfacing of any external components which are not a standard option or accessory obtained from the Original Equipment Manufacturer (OEM), or designed in cooperation with the OEM to directly interface to the equipment through existing connections utilizing vendor-provided or common off-the-shelf interface cabling.

1.6.3.3 The alteration of equipment circuitry in a manner which was not part of the OEM design or included in OEM documentation.

1.6.3.4 The fabrication and repair of RF (coax) jumpers and the extension of power and speaker cables are allowed, provided that the OEM connectors are not altered and good engineering practices are observed.

1.6.3.5 Reconfiguration of equipment assemblies must be approved in writing from National Headquarters via the CommPermissions process IAW para. 6.12., with unused components returned to the CAP National Technology Center (NHQ/NTC) for proper reutilization. Equipment assemblies identified as requiring permission to reconfigure include:

1.6.3.5.1 Fixed repeaters and their associated components such as duplexers, intermodulation (IM) panels, cabinets, and surge arrestors.

1.6.3.5.2 Tactical repeaters and their installed subcomponents and included cable kits.

1.6.3.5.3 HF Rapid Deployment Kits (RDP) with their installed tuners, power supplies cases, and accessory components beyond the normal deployment of the component parts.

1.6.3.5.4 Substitution of alternative connectors on any radio, including antenna, power, and microphone connectors.

Applications for approval to reconfigure equipment should use the process identified in paragraph 6.12.

1.6.3.5.5 Upgrades to firmware of all CAP radios shall be performed only by the NTC or with approval received via the CommPermissions process, IAW para 6.12.



**1.7. Definition of Terms.** Attachment 2 contains an extensive definition of terms used on the CAP Communications Program.

**1.8. Supplements/Operating Instructions/Waivers.** Supplements, operating instructions or waivers will not be issued to this regulation without prior written approval of National Headquarters, chief of communications (NHQ/DOK).

**1.9. For Official Use Only Information.** The radio frequency assignments provided by the USAF are sensitive information and require protection from unauthorized release. They are designated as UNCLASSIFIED//FOR OFFICIAL USE ONLY (U//FOUO).

**1.9.1. Release of Air Force Frequencies.** Any CAP member who has completed OPSEC training, with a reasonable need to know, may be provided actual VHF-FM and HF operating frequencies, as provided in this paragraph; however, most CAP members may not need to know the actual frequencies. In most cases, frequency designators or radio channel numbers are sufficient and make the communications system more user friendly. CAP members shall not release or comment on CAP radio frequencies to any person, business or organization where there is not a legitimate need to know. Plans, instructions and other documents containing frequencies shall not be left unattended in non-secure locations, released to the general public, or made available to unauthorized viewing via the World Wide Web or by any other means. CAP-USAF approval is required for release of frequencies to outside agencies. Within CAP, frequencies may only be released to members who have a legitimate need to know, have taken the on-line OPSEC training, and have agreed to protect CAP frequency information. Where agencies, businesses or individuals outside of CAP have a legitimate need to know, permission may be requested IAW para.6.12. In contingency situations, other national level offices such as the National Operations Center (NOC) may coordinate directly with CAP-USAF.

**1.9.2. Marking of Documents.** All documents containing military/Air Force frequencies will be marked "UNCLASSIFIED//FOR OFFICIAL USE ONLY" at the top and bottom of each page. The following statement will be clearly displayed on the front page of any document containing FOUO information:

UNCLASSIFIED//FOR OFFICIAL USE ONLY (U//FOUO)

Frequency information contained in this document is designated by the Department of Defense (DoD) as For Official Use Only. CAP-USAF approval, obtained through NHQ, is required for release of frequencies.

**1.9.3. Radio Design Limitations.** Where the design of corporate communications equipment provided through National Headquarters makes it impossible to conceal the actual operating frequency of a radio, CAP personnel shall make a good faith effort to keep those without a need to know from seeing the display; however, in such cases, the incidental visibility of the frequency will not be considered to be a violation of this policy.



## Chapter 2 - COMMUNICATIONS PLANS

**2.1. General.** Strategic planning is vital to ensure that CAP Communications systems are ready to support the mission requirements of customers, including external customers, and CAP operational missions. The National Communications Strategic Plan and annual National Communications Plan are the basis for strategic planning at the region, wing and unit levels. Each level of planning supports the plan of the next higher level of the organization.

**2.2. Communications Plan Requirements.** Each CAP region and wing develops and publishes an annual communications plan, written in support of the next higher headquarters' plan, and approved as policy by the respective commander. Such plans shall be reviewed and updated annually; however, they need not be completely rewritten if conditions have not changed significantly from year to year. Previous requirements for separate Emergency Communications, Operations and Training, and Repeater plans are now consolidated into a single comprehensive plan.

2.2.1. The National Communications Strategic Plan and the National Communications Plan are policy-level documents created by NHQ/DOK and are approved by the National Commander with concurrence from CAP-USAF. National Communications plans are announced via the CAP-DC listserv and are available to CAP members in the Communications section of eServices.

2.2.2. Region Plans are based on the National Communications Strategic Plan and the most recent National Communications Plan. Region plans shall be submitted to [comm-plans@lists.caphq.gov](mailto:comm-plans@lists.caphq.gov), with a copy to each subordinate wing DC, not later than 10 January of each year. Plans shall be submitted in PDF format.

2.2.3. Wing Plans support the region and national plans and shall be submitted to [comm-plans@lists.caphq.gov](mailto:comm-plans@lists.caphq.gov), with a copy sent to the Region DCS-Communications, not later than 10 April of each year. Plans shall be submitted in PDF format.

2.2.4. Unit Plans are not required but are optional. The Wing DC may provide further guidance to units concerning planning requirements. Formal and informal unit plans should support the annual wing, region, and national plans.

2.2.5. Regardless of the level of the organization, plans must comply with all applicable directives, to include communications plans of all higher headquarters.

2.2.6. As needed, communications plans may be updated at any time during the year by resubmission as per paragraphs 2.2.2. and 2.2.3. above.

2.2.7. Communication plans shall be implemented into the wing's operational procedures and exercised in conjunction with operational training events.

**2.3. Plan Content.** All plans shall include provisions for the activation and employment of required Communications resources for a range of typical missions and activities. After action reports from recent actual missions and training exercises should be taken into consideration in developing the plan for the subsequent year. All communications plans shall take into account the need for radio communications when the commercial infrastructure is unavailable.

2.3.1. Region plans should focus on activation and employment of resources for command and control (C<sup>2</sup>) communications among wings for coordination of multi-wing missions.

2.3.2. Wing plans should support region and national plans and address typical Communications and Emergency Services operations and missions, including support for the annual Wing Operations Plan.

2.3.3. NHQ/DOK may provide wing and/or region plan templates, which shall be used. If provided, templates will be available in the online communications library of the Communications website. If no template is provided, wing and region communications plans should address the following points:

2.3.3.1 A situational analysis, briefly outlining past history and explaining strengths and weaknesses of the current VHF-FM and HF/ALE communications systems in the wing/region.

2.3.3.2 Identification of message center stations, net control stations and how the wing/region will relay traffic to and from stations outside the wing (see A.2.14.)

2.3.3.3 Standard procedures for activation and employment of resources for each location typically used as an Incident Command Post in order to have a “starting point” channel plan for each typical mission scenario when the commercial infrastructure is unavailable. This should include traditional search and rescue, disaster relief, homeland security, state and local customer missions, and deployment across wing and region boundaries. This communications planning step is essentially the same as that used in Incident Command System (ICS) communications planning. If appropriate, the Wing Communications plan should include ICS 205 form templates.

2.3.3.4 Structure and rationale for deployment or pre-positioning of communications packages and kits, including tactical repeaters, Rapid Deployment Kit HF/ALE radios and mobile HF/ALE stations.

2.3.3.5 As appropriate, support to other CAP missions, such as the Cadet Program and Aerospace Education Program may be addressed.

2.3.3.6 As appropriate, the line items above should also address goals, strategies, and tactics for further growth and development of communications capabilities in the region/wing. In such cases, clear and reasonable timelines for accomplishing the goals are recommended.

2.3.3.7 All wings should address operations via VHF-FM, conventional HF, HF/ALE, ISR, and agency liaison systems.

**2.4. Plan Approval.** Communications plans are policy-level documents, approved by the respective Commander, with input from the respective Operations staff.

**2.5. Review of Annual Plans.** Communications managers at each level may direct revision of plans from subordinate units. NHQ/DOK may accept wing and region plans or return them for revisions, in which case the wing or region will have 30 days to resubmit. National Headquarters may post approved region and wing plans in the Communications section of eServices.

**2.6. Special Planning.** The National Headquarters staff may task wings and/or regions to submit special one-time plans for special programs or activities. In such cases, formats or other guidance will be delivered to Directors of Communication by posting in the Communications section of eServices and/or via the CAP-DC listserv.

## Chapter 3 - CAP COMMUNICATIONS REPORTS

**3.1. General.** The following establishes CAP communications standards, reporting, and data requirements. The information provided by these statistics will be used in the CAP Annual Report to Congress, and to keep the region/wing commanders and other staff members informed about the CAP communications program. The reports listed below are required.

**3.2. After Action Reports.** After Action Reports (AARs) of wing and region communications exercises, and other major activities during which communications training is conducted and/or lessons are learned should be submitted to NHQ/DOKO. Wing reports should also be submitted to the region DCS-COMM. NHQ/DOK may specify report formats for exercises conducted at various levels. Email submissions to NHQ/DOKO are satisfactory. In the case of regular operational missions or training, communications sections may be excerpted from larger reports for submission NHQ.

**3.3. Annual Radio Communications Effectiveness Evaluations.** The success of providing adequate communications support to CAP missions is largely dependent upon the reliability and effectiveness of the communications network. In order to assess this capability, a Radio Communications Effectiveness Evaluation will be conducted annually in the form of a radio communications exercise.

3.3.1. Each region will conduct an annual radio communications effectiveness evaluation. Because Communications Program support for operational missions is done with advance notice or in accordance with pre-existing alert procedures, advance notice of the exercise, including exact scheduling, may be given. Region effectiveness evaluations will be designed for the participation of all region and wing radio stations. An after action report will be submitted to CAP-USAF liaison region director of operations (LR/DO), NHQ/DOKO, and NHQ/DOKPP within 30 days after the exercise. The LR/DO email address is found in the Key Personnel Directory in eServices.

3.3.2. Each wing will conduct an annual radio communications effectiveness evaluation. Because Communications Program support for operational missions is done with advance notice or in accordance with pre-existing alert procedures, advance notice of the exercise, including exact scheduling, may be given. This exercise will be pre-coordinated and approved by the region DCS/Comm and will be designed for the participation of all radio stations in the wing. An after action report will be submitted to CAP-USAF liaison region director of operations (LR/DO), region DCS/COMM, and NHQ/DOKO, and NHQ/DOKPP within 30 days after the exercise. The LR/DO email address is found in the Key Personnel Directory in eServices.

3.3.3. National Headquarters may conduct periodic national communications exercises at times and with scenarios determined by NHQ/DOK in coordination with operations.

**3.4. National Repeater Directory.** The National Repeater Directory, in the Communications section of eServices, serves as the official record of the operational status of all fixed CAP repeaters. Any time a fixed repeater is out of service for more than 24 hours, or is expected to be, the Wing Director of Communications shall update the online repeater directory to reflect the unavailability of the asset. This includes repeaters out of service due to maintenance, repeaters being moved to new locations, power outages, and any other circumstance making the repeater unavailable for more than 24 hours. In addition to updating the repeater directory, the DC should advise the NHQ/NTC of the circumstances via the maintenance request system in the Communications section of eServices.

## Chapter 4 - COMMUNICATIONS AWARDS

**4.1. General.** The following awards have been established for the purpose of recognizing the service, achievements, and degree of proficiency attained by personnel who have applied their time and efforts to the CAP communications program. This includes cadets who meet the listed criteria specified in the Senior Member Training Guide, CAPP 214, *Specialty Track Study Guide-Communications Officer*.

**4.2. Awards and Citations.** The awards available within the communications program are designed to serve a distinct purpose:

4.2.1. Recognize those communicators who have given time and effort to promote the communications function.

4.2.2. Encourage the undertaking of communications related activities at all levels.

**4.3. The Communicator Badge.** The Basic Communicator Badge is designed to recognize those individuals who have completed the Technician rating in the Communications Officer specialty track (CAPP 214). The Basic badge may be worn IAW CAPM 39-1, *Civil Air Patrol Uniform Manual*, as soon as the Technician rating appears in eServices.

**4.4. The Senior Communicator Badge.** The Senior Communicator Badge is designed to recognize those individuals who have completed the Senior rating in the Communications Officer specialty track (CAPP 214). The Senior badge may be worn IAW CAPM 39-1 as soon as the Senior rating appears in eServices.

**4.5. The Master Communicator Badge.** The Master Communicator Badge is designed to recognize those individuals who have completed the Master rating in the Communications Officer specialty track (CAPP 214). The Master badge may be worn IAW CAPM 39-1 as soon as the Master rating appears in eServices.

**4.6. The Communications Patch.** The cloth Communications Patch is the BDU/Utility uniform equivalent of the Communicator Badge. Any member authorized to wear any of the three levels of Communicator Badge may also wear the Communications Patch on the uniform(s) for which it is appropriate. The Communications Patch is only authorized for members who have entered into the Communications specialty track and achieved at least the Technician rating IAW CAPP 214, or cadets meeting the qualifications of paragraph 4.7.

**4.7. Cadet Eligibility for Communicator Badge/Patch.** Cadets are encouraged to pursue each level of the communicator badges. To do so, cadets must meet all the training requirements listed in the appropriate section of CAPP 214 with the exception of the portions specifically intended for the senior member training program. If a cadet authorized to wear a communications badge or patch subsequently transfers to Senior Member status, badges/patches earned as a cadet may continue to be worn for up to 4 years; however, remaining requirements of CAPP 214 must be completed at each level in order to qualify as holding the actual Technician, Senior, or Master levels of the specialty track. See CAPP 214 for the approval process for cadets.

**4.8. Communicator of the Year.** This award has been established to recognize a current member who has made a significant contribution to the CAP Communications Program as a whole. This selection may be based on the member's lifetime contributions to the CAP Communications Program, not just the year of nomination.

4.8.1. Each wing and region will conduct this program and award a “Communicator of the Year” at their level. The wing or region DC/DCS Comm should be involved in this process. The winner of this award is submitted as the nomination to the next higher echelon. Units below wing level may also make this award at their level, if they desire. This is encouraged where practical.

4.8.2. Nominations, in narrative form, are to be submitted through channels in accordance with the following timetable:

15 January - Unit nominations due to wing for consideration as the “Wing Communicator of the Year.”

15 February - Wing nominations due at region for consideration as the “Region Communicator of the Year.”

15 March - Region nominations due at NHQ for consideration as the “Civil Air Patrol Communicator of the Year.”

In the event that no nomination is received, NHQ/DOK may request a nomination from each of the region DCS/Comms for consideration or may select an outstanding individual directly.

4.8.3. At each echelon, the Communicator of the Year Award should be presented at an appropriate function such as the wing or region conference. The national award will be presented at the annual National Conference and Command Council.

## Chapter 5 - COMMUNICATIONS TRAINING AND AUTHORIZATION

**5.1. Communications Curriculum.** The CAP Communications Program has been tasked to develop a comprehensive training curriculum covering emergency services communications functions, administrative communications, and a wide range of communications management training. The “modules” of the curriculum are under ongoing development and revision. As new sections of training are implemented, they will become mandatory or recommended for many CAP communications positions, functions, and staff members.

**5.2. Introductory Communications Users Training (ICUT).** The initial training for all CAP personnel using CAP radios is the Introductory Communications User’s Training (ICUT). This course replaced both the Basic Communications User training (BCUT) and the Advanced Communication Users training (ACUT), which are no longer taught. ICUT is offered online and includes several segments of produced video instruction. Subsequent skills evaluation by a mentor/evaluator is also required. The only prerequisites for ICUT are being an active CAP cadet or senior member, as defined by CAPR 39-2, *Civil Air Patrol Membership*, and completion of OPSEC training, which is part of Level One training.

5.2.1. All members with duties requiring unsupervised operation of radios on CAP frequencies must complete ICUT training.

5.2.2. Effective on 1 October 2015, ACUT and BCUT are outdated qualifications and members must have completed ICUT for all use of radios.

5.2.3. Communications staff member recorded in eServices at any level, including cadets, may serve as mentors/evaluators. All mentors/evaluators must have completed ICUT and Skills Evaluator Training (SET) before they may supervise performance of skills and procedures of ICUT students. The mandatory standardized checklists and guidelines for mentors/evaluators may be found by qualified evaluators in the Communications section of eServices.

5.2.4. Students completing online ICUT instruction or classroom instruction must demonstrate required skills to a qualified evaluator, IAW paragraph 5.2.3, above. When a student has performed the required skills and procedures satisfactorily, the student may enter the training approval in OPS QUALS, similar to conventional ES training. Although a separate section of OPS QUALS is provided for Communications training, the training will cross-reference into ES training SQTRs.

5.2.5. Local mentors/evaluators may deliver a “live” version of the ICUT course, showing the training videos in a classroom setting, administering the written test and following the instructor’s guide found in the downloadable ICUT materials in the Communications section of eServices. Any unit/wing/region/national Communications staff member recorded in eServices who has completed ICUT, may serve as mentor/evaluator for the live ICUT classes. In live instructional settings, the Instructor’s Guide must be followed faithfully.

5.2.6. Members who previously held a valid ACUT qualification, documented in eServices, are required to take only the OP1 section of the ICUT course, which is an orientation to the 21st Century CAP Communications system; however, they have the option of not taking the ICUT sections about operation of VHF-FM radios (T1) and radio operating procedures (OP2). The Learning Management System, used for online ICUT instruction, and OPS QUALS are structured to reflect this option. It is recommended that all communicators take all sections of ICUT in order to be familiar with the training received by newer members.



**5.3. Authorization.** Authorization of stations consists of assigning a CAP tactical call sign to a CAP member, vehicle, facility, or specific radio. Members who have completed ICUT training may apply for a CAP tactical call sign using procedures specified by the wing. Wing policy may require assignment or availability of a radio in order to be eligible for a tactical call sign, but will not require further training or a standard higher than ICUT accomplishment.

**5.4. CAPF 76.** The CAPF 76, *Radio Station Authorization*, is not required for CAP members to operate CAP radio stations, as long as the ICUT training has been completed and documented in OPS QUALS. The card may be issued by communications managers, as needed, such as if local law enforcement requires proof of authorization. Only the current version may be used. In most cases, a separate CAPF 76 is not needed because the record of Communications qualification is found on the CAPF 101, *Civil Air Patrol Specialty Qualification Card*, found in OPS QUALS.

**5.5. On-going Training.** Communications training is an on-going requirement.

**5.5.1. Communications Exercises.** Communications managers at all levels should plan and execute communications exercises and other training on a regular basis to give operators the opportunity to remain proficient and to improve unit communications capabilities. Wings, regions, and National Headquarters shall each conduct at least one formal communications exercise per year, IAW paragraph 3.3. In addition to the requirement of paragraph 3.3., communications managers at all levels should develop diverse formal and informal exercises and other activities to provide members with practical experience in operating under anticipated mission conditions, in accordance with the Wing Communications Plan, in support of higher headquarters plans. After Action Reports should be prepared following all exercises and training activities in order to provide a self-critique and improve future performance. These After Action Reports are forwarded to the communications staff at the next higher headquarters when a report shows significant successes or challenges. See para. 3.2. concerning wing and region after action reports.

**5.5.2. Communications Meetings/Conferences.** Regular interaction of communicators and communications managers from regions, wings, and subordinate units is essential to maintaining an effective communications program. This facilitates discussion of communications problems, new proposals, an exchange of ideas, development of mutual understanding, an opportunity for individual and unit recognition, discussion of program changes, and a renewal of interest by the members. This “cross-pollenization” of ideas helps build team spirit, which is crucial to the Communications Program. Each region and wing should engage in one or more of the following activities per year for communications managers and others interested in the communications program:

5.5.2.1. An annual wing/region communications meeting or conference. A summary of the meeting, including a log of the participants, should be submitted to the next higher echelon within 30 days after the activity.

5.5.2.2. Subordinate unit visits by the wing/region DC or other communications staff members to brief communicators and gather input. Such visits may also be performed using Internet videoconferencing technology. A summary of the meeting, including a log of the participants, should be submitted to the next higher echelon within 30 days after the activity.

5.5.2.3. Use of electronic communications, such as listservs or web forums, tailored to the CAP Communications Program in the wing/region. Care should be taken in discussing FOUO information if subscribers are not rigorously controlled. Communications managers from higher headquarters should be provided the opportunity to participate.



## **5.6. Operation of CAP Radio Equipment by Non-members.**

5.6.1. The NTIA manual states that "the station should be operated by an employee . . . or by a person who operates under the control of the department or agency on a contractual or cooperative agreement and who is under the supervision of the department or agency sufficient to ensure that agency instructions and limits are met." (NTIA paragraph 8.2.17.1.c). It is CAP's policy that non-members may operate CAP radios for CAP business, provided they are directly supervised by a qualified CAP member, except as in paragraphs 5.6.2. and 5.6.3. below.

5.6.2. For the purposes of liaison communications, representatives of Federal, state, and local agencies may occasionally operate CAP equipment without direct supervision. This would normally only occur under situations where a memorandum of understanding (MOU) or other formal relationship exists with that agency and where it is necessary in a contingency situation.

5.6.3. Representatives of certain Federal agencies may occasionally use CAP's repeater system for their own missions, normally using encrypted P-25 transmissions. This use is authorized at the National level by CAP NHQ, which will attempt to notify appropriate CAP personnel when this occurs. CAP communications managers detecting the use of the repeater system by outside agencies should report this immediately and directly to NHQ/DOK or the National Operations Center (NOC) before taking other action.

## Chapter 6 - COMMUNICATIONS MANAGEMENT

### 6.1. Fundamental Requirements and Assumptions Used in Communications Management.

Management of the CAP Communications system is a multi-faceted undertaking, encompassing strategic planning, record keeping, training, and operational excellence.

6.1.1. The CAP Communications Program complies with the National Telecommunications and Information Administration (NTIA) standards, as published in the *Manual of Regulations and Procedures for Federal Radio Frequency Management*.

6.1.2. Radio equipment used by CAP on federal frequencies must comply with all standards of the NTIA. Determination of compliance is based on the specifications of the radio published by the manufacturer. CAP maintains a list of radio equipment evaluated as compliant. This list can be found via the Communications section of eServices.

6.1.3. The Air Force has provided extensive funding to the CAP Communications Program because compliance with NTIA standards removed much of the inventory of CAP VHF-FM radios previously in service, including a large number of member-owned radios. USAF funding was approved to replace these radios with a CAP-owned infrastructure engineered to accomplish missions required of CAP by the Air Force. As a result, support for member-owned radios of lesser capability is not a priority of the system engineering.

6.1.4. The Air Force-funded CAP communications system needs a significantly higher level of standardization than was appropriate or possible when the communications infrastructure was largely member-owned. The benefits are greater intra-operability, an increase in mission effectiveness, and less expense to members.

6.1.5. As with all military-style organizations, lines of authority in Civil Air Patrol Communications follow one of two paths, depending on the circumstances.

6.1.5.1. On operational missions, the Communications Unit Leader manages communications in accordance with CAP directives, established wing and higher headquarters Communications plans, and with other policy, to address the requirements of the CAP Incident Commander and accomplish the assigned mission. Other communications managers outside the mission are provided status reports and called on for assistance, as appropriate or directed.

6.1.5.2. Other than during operational missions, each headquarters exercises communications program management authority over subordinate units. Communications managers at each level follow guidance from the communications managers of higher headquarters and provide guidance to communications managers in subordinate units in order to implement CAP directives.

6.1.5.3. Communications managers in all circumstances interpret, implement, and make recommendations about policy. They do not create policy independent from command. Policy recommendations at each level are coordinated with communications managers at higher headquarters to ensure that they do not conflict with higher level policy.

6.1.6. CAP funds may only be used to purchase radios for use on federal frequencies if the radio is listed as NTIA compliant in the Communications section of eServices.

**6.2. Spectrum Management.** CAP spectrum management is conducted under the jurisdiction of Air Force Spectrum Management Office (AFSMO), which complies with guidance provided by

the Military Communications and Electronics Board (MCEB) and the National Telecommunications and Information Administration (NTIA). The CAP National Headquarters spectrum management staff (NHQ/DOKEF) coordinates frequency assignments as necessary with other federal agencies and departments. Wing communications staff coordinates frequencies with state and local agencies as well as tower owners and local groups but must secure approval prior to release of federal frequencies, IAW para. 6.12.

6.2.1. Paragraph 11.2 addresses spectrum management requirements with respect to interoperating with Air Force and other military branch active duty, reserve, and guard radio stations.

6.2.2. All CAP base stations located on federal installations require advance federal frequency coordination, performed via the CAP communications spectrum management office, NHQ/DOKEF, working with the facility spectrum coordinator.

6.2.2.1. CAP operational missions on federal installations, such as SAR/DR operational and training missions, do not require advance coordination.

6.2.2.2. Planned special event operations exceeding 48 hours in duration on federal installations, such as encampments, require advance spectrum coordination, performed via the CAP communications spectrum management office, NHQ/DOKEF, working with the facility spectrum coordinator. DOKEF may require a minimum of six weeks to obtain Government approval, so advance planning is essential.

6.2.2.3. "Federal installation" in para. 6.2.2.1. and 6.2.2.2. includes any US government office; any military base, military training facility, National Guard or Reserve training center or base; posted federal lands; any facility that is owned or managed under a Cabinet Level department, such as the Department of Energy, Bureau of Land Management, National Parks Service, US Coast Guard, Customs and Border Patrol, National Weather Service, and US National Research Laboratories. Native American reservations are not "federal installations" for purposes of the requirement in para. 6.2.2.1. and 6.2.2.2.

6.2.3. All requests for special spectrum management support should be directed to NHQ/DOKEF. Units wishing to install radio stations/antennas on military installations must coordinate in advance by emailing DOKEF@capnhq.gov. Units may not contact military base spectrum management staff directly concerning specific antenna locations or frequencies.

**6.3. User and Radio Authorization.** Completion of ICUT, as recorded in eServices, and authorization to use an appropriate call sign, constitutes authority for unsupervised operation on CAP frequencies. Authorization may constitute a personally-assigned call sign, or a squadron, vehicle, or aircraft call sign. Wings, regions, and National Headquarters may use discretion in assigning call signs to members, vehicles, or physical locations that do not have radios assigned.

**6.4. Posting of Station Authorization.** Under NTIA and DOD Spectrum Management rules, there is no requirement to post the station authorization at the operating console or at the transmitter site.

**6.5. Revocation of Authorization.** A wing or higher commander may, for reasonable cause, terminate the privileges of any CAP member in his or her command to participate in CAP radio activities. Appeals may be addressed to the next higher headquarters. This revocation shall be promptly noted in the eServices/OPS QUALS system.

**6.6. Communications Monitoring.** Communications managers at each level of the organization are responsible for ensuring CAP communications adhere to all applicable technical and

procedural requirements. Members observing operation outside of these standards should notify the appropriate net control station, unit communications officer, or wing DC. Reporting and corrective actions should normally be handled off the air.

**6.7. Authorization Records and Inventory.** An efficient record keeping system is the responsibility of each region and wing director of communications. All files will be maintained in accordance with CAPR 10-2, *Files Maintenance and Records Disposition*. They may, however, be kept in electronic form as an alternative to paper records, and should respect appropriate OPSEC and member privacy considerations.

**6.8. Authorization of Practice Beacons for Locator Training:**

6.8.1. **Frequency.** CAP operates practice beacons on the frequency of 121.775 MHz only.

6.8.2. **Modulation Requirements.** 3K20A3X or 3K20A3N emission (wavering tone). Practice beacon frequencies shall not be used for voice transmission by CAP.

6.8.3. **Type Acceptance.** Practice beacons must be FCC type accepted or conform to the parameters of J/F-12 Number 7192 for Pointer Cadet 6000 practice beacon.

6.8.4. **FAA Notification.** Where possible, CAP units should provide advance notification of intended use of practice beacon transmitters on 121.775 MHz to the appropriate FAA Regional Spectrum Management Office, the FAA Flight Service Station, or the local air traffic control facility nearest the practice beacon transmitter(s) operating location(s). Notification should include: date of test, test location, geographical coordinates and a local contact (individual). This is a professional courtesy extended to the FAA to reduce any possibility of confusion. Exercise managers should make every effort to provide this advance notice whenever possible.

**6.9. Communications Property Management.** All Air Force funded CAP communications equipment shall be assigned in accordance with the Communications Table of Allowances (TA), which is approved by CAP-USAF, and in accordance with CAPR 174-1. The TA is found in the Communications section of eServices.

6.9.1. **Table of Allowance Implementation.** Commanders and their directors of Communications should be able to identify the line and column of the TA under which a given radio is assigned. National Headquarters may provide additional recommendations for compliance with the TA.

6.9.2. **Effective Utilization of Communications Equipment.** All communications equipment shall be utilized in accordance with the Communications Table of Allowances (TA), found in the Communications section of eServices.

6.9.3. **Communications Equipment Assigned to Region and National Staff.** Holders of region or national staff positions who are fulfilling active operational roles for wings, such as Incident Commander, Ground Team Leader, etc., may and should be issued radio equipment for those operational positions by the wing they are supporting in those positions, IAW the TA. Staff members who are transferring among headquarters, such as from wing to region headquarters, may be requested to surrender their communications equipment, or have it reassigned in accordance with their new status.

**6.10. Authorization of VHF/FM Repeaters.** Repeaters are national assets assigned to wings and repeater authorizations are part of the Communications Table of Allowances (see para. 6.9.).

6.10.1. Except for tactical repeaters operated to support a particular mission or CAP activity (see paragraph 8.4.), fixed repeaters will not be placed into service, moved, modified (such as changing antenna, height, etc.), or transferred to another wing without prior approval by the National Repeater Coordination Group and subsequent amendment of the TA by CAP-USAF. Wings will submit all requests for new repeaters or changes and modifications to existing fixed repeaters via the on-line Repeater Application and Review System in the Communications section of eServices.

6.10.2. In order to maintain a current record of repeaters which are mission-capable, the Wing director of communications shall update the online repeater directory in the Communications section of eServices to document when a repeater is taken out of service for more than 24 hours. See para. 3.4.

### **6.11. Marking of CAP Repeater and Radio Equipment.**

6.11.1. Repeaters and other fixed CAP radio equipment that are in locations accessible by non-CAP personnel should have the minimum labeling allowable by the site owner or manager. In the event that posting of FOUO information is required, permission must be requested in advance IAW paragraph 6.12.2. Care should be taken to not unnecessarily call attention to CAP ownership of equipment, where visible by non-CAP members.

6.11.2. HF antennas on vehicles that can be touched from ground level shall have a radiation exposure sign, provided by NHQ/NTC, affixed on or immediately adjacent to the antenna.

**6.12. Special Permissions.** In order to preserve national standardization, integrity, and security of systems, advance permission from National Headquarters is required for certain actions, including interconnecting repeaters with outside equipment, reprogram repeaters, physically reconfiguring repeaters, employing local technicians for work above the maintenance level (see paragraph 1.6.), and release of FOUO frequencies outside of CAP. These special permissions are requested via the “CommPermissions Process.” Such requests are submitted by the wing DC with the wing commander’s written approval to [commpermissions@capnhq.gov](mailto:commpermissions@capnhq.gov), per the guidance specified below:

6.12.1. **Interconnection with Equipment Outside the Repeater as Supplied.** Except for standard power, antenna, and grounding connections, proposals to connect repeaters to other equipment shall be approved by National Headquarters prior to implementation.

6.12.1.1. Following written coordination with the wing commander, the director of communications shall e-mail the proposal and confirmation of the wing commander’s approval to: [commpermissions@capnhq.gov](mailto:commpermissions@capnhq.gov).

6.12.1.2. The proposal should include justification of need, identification of the hardware proposed for connection, and connection technique.

6.12.2. **Reprogramming of Repeaters.** Proposals to reprogram repeater frequencies with other than the assigned codeplug, access tones, or other programmable functions shall be approved by National Headquarters prior to implementation, except for programming that sets or returns repeater parameters to those authorized by the National Repeater Coordination Group (NRCG). Following written coordination with the wing commander, the director of communications shall e-mail the proposal and confirmation of the wing commander’s approval to [commpermissions@capnhq.gov](mailto:commpermissions@capnhq.gov). The proposal should include justification of need for the requested reprogramming.

**6.12.3. Physical Reconfiguration of Repeaters.** Proposals to permanently remove repeaters from cabinets or otherwise change the configuration in which they are shipped from NHQ/NTC shall be approved by National Headquarters prior to implementation. Temporarily disassembling repeaters for transportation does not require permission, as long as they are reassembled in their original configuration. Following written coordination with the wing commander, the director of communications shall e-mail the proposal and confirmation of the wing commander's approval to [commpermissions@capnhq.gov](mailto:commpermissions@capnhq.gov). The proposal should include justification of need, including building measurements and/or photographs to document the need, where appropriate.

**6.12.4. Approval for Local Technicians.** Proposals for local technicians to perform maintenance on repeaters other than standard functions shall be approved on a case-by-case basis by National Headquarters prior to any work being done. Standard functions are basic installation, including connection of standard power, ground and antenna connections; fabrication of RF and grounding cables; measurement of modulation, forward power, reflected power, transmitter frequency, and receiver sensitivity; setting squelch and authorized power; and basic "housekeeping" including routine cleaning, tightening connectors, etc.

6.12.4.1. Following written coordination with the wing commander, the director of communications shall e-mail the proposal and confirmation of the wing commander's approval to [commpermissions@capnhq.gov](mailto:commpermissions@capnhq.gov).

6.12.4.2. The proposal should include justification of specific maintenance functions to be performed and the need. Proposals should document the following information:

6.12.4.2.1. Provide Name, CAPID (if applicable), General Radiotelephone Operator's License or industry equivalent certification, and experience/qualifications of the responsible technician (or company information for commercial providers). Be sure to address how often your proposed technician has done such functions (e.g. swapping out cards, repeater duplexer tuning, etc.) in the past.

6.12.4.2.2. If the requested approval is for retuning/realigning the repeaters, the following additional items must be included in the request:

6.12.4.2.2.1. Test/Alignment Equipment. Identify the professional-grade, full feature service monitor plus spectrum analyzer with tracking generator and/or wave analyzer your technician will use. Examples are IFR, Motorola, HP, etc. Hobby-grade equipment is not acceptable.

6.12.4.2.2.2. Provide make, model and serial number of all test equipment used to retune/realign the repeater, and the owner of the test equipment (company information if from a commercial provider). This is not required if contracting with a commercial radio shop. The serial number is not required if renting certified equipment.

6.12.4.2.2.3. Provide documentation of the most recent calibration of the test equipment to an NIST Traceable Standard. For rental equipment or contracted service providers, a statement of the calibration standards is sufficient.

**6.12.5. Release of FOUO Frequencies Outside of CAP.** Proposals to provide CAP frequencies to repeater site owners/managers, local partner agencies or other entities outside of CAP shall be approved on a case-by-case basis by CAP-USAF via CAP National Headquarters prior to disclosure.



6.12.5.1. Following written coordination with the wing commander, the director of communications shall e-mail the proposal and confirmation of the wing commander's approval to [commpermissions@capnhq.gov](mailto:commpermissions@capnhq.gov).

6.12.5.2. The proposal should include justification of a need to know on the part of the proposed recipient.

6.12.5.3. When providing such frequency sensitive information, the CAP user shall inform the recipient in writing that the frequency information is Department of Defense For Official Use Only (FOUO) and must be afforded a reasonable level of control. National Headquarters may provide a template for such written notification.

6.12.6. **Other permissions.** NHQ/DOK may direct use of the CommPermissions process for other specific requests where National Headquarters permission is required.

**6.13. National Programming Plan.** The programming and channelization of CAP corporate VHF-FM equipment is governed by the National Programming Plan (NPP) and updated as required by National Headquarters. Compliance with this plan is mandatory for all corporate radios able to function on more than 128 channels. The plan is implemented via the HF and VHF channel loads (code plugs) available in the Communications section of eServices. Local documentation of authorization is not required for interoperability channels included in the NPP. It is recommended that member-owned radios comply with the plan, to the extent possible. National Headquarters may also require or facilitate firmware upgrades and/or feature upgrades, in order to add required nationally-standardized capabilities.

6.13.1. **VHF/FM Channel Loads.** In order to maintain nationwide uniformity of radio programming, the VHF-FM radio channel loads, also known as code plugs, that are downloaded from the Communications section of eServices and installed into Mission Essential and Mission Critical radios may only be modified in the following specific ways:

6.13.1.1. Channels that are not programmed in the NPP may be locally programmed, with the following conditions:

6.13.1.1.1. The "extra" channels in Zones 1, 6, and 16 may be programmed, but be aware that NHQ may later require them to become standardized.

6.13.1.1.2. All channels on CAP-assigned frequencies MUST, if the radio allows it, be programmed for "dual mode" receive, that is, both analog and P-25 digital reception. Note: E.F. Johnson radios supplied by CAP have this capability. Some VHF-FM radios in CAP aircraft do not.

6.13.1.1.3. All channels programmed to transmit on CAP-assigned frequencies must also be programmed for CTCSS and NAC (digital) squelch. Only receive-only channels may be programmed for "Carrier squelch."

6.13.1.1.4. All programmed inter-operability channels must be authorized for CAP use, either under a national authorization (i.e., the Federal Interop channels), local memorandum of understanding, or other agreement approved by National Headquarters. Amateur band channels must NOT be programmed without written authorization from NHQ, requested through the CommPermissions process (see paragraph 6.12.).

6.13.1.1.5. Digital ID may be programmed, with the provision that this may need to be reprogrammed at a later time due to encryption/OTAR requirements.



6.13.1.1.6. Transmitter time out, scan lists, and alias lists may be programmed as desired.

6.13.1.1.7. Buttons on E.F. Johnson radios may not be reprogrammed with the exception of the last two buttons on Version 1 5317 radios, and the center side and top Orange buttons on 5112 handheld radios. Additional entries in the "Menu" for Version 4 5317 mobiles and 5112 handhelds are authorized.

6.13.1.1.8. Zones that are not a part of the NPP may be added and programmed to support local requirements IAW this regulation.

**6.13.2. HF/ALE Channel Loads.** All CAP-owned Micom radios shall be programmed with standard channel loads, also known as code plugs, found in the Communications section of eServices. Channels not used in the national channel loads may be used for local interoperability frequencies, IAW para. 11.9.

6.13.2.1. Regardless of model of HF radio, the first four channels in all CAP-owned HF radios must be standardized with Channel 1, NRA; Channel 2, NRB; Channel 3, NRC; and channel 4, NRD. Member-owned HF radios should conform, to the extent possible.

6.13.2.2. Parameters of ALE operation must be standardized for efficient and effective ALE use. The current .RSS and .ALE files in the Communications section of eServices for each model of radio represent the current standard parameters. No parameters may be changed without NHQ approval, except for turning tuner on and off, turning alert on and off, and turning noise blanker on and off. Turning sounding on and off and adjusting sounding interval will be according to guidance contained in the National Communications Plan.

**6.14. Encryption.** As CAP's missions transition further into the realm of sensitive and possible classified taskings, the issue of communications encryption becomes crucial. CAP-USAF has verified that DoD and AF policy guidance on encryption applies to CAP. Pending further development of implementation procedures, CAP will comply with the following requirements:

6.14.1. CAP encryption implementation must be IAW AFI 33-201 Vol. 1, using National Institute of Standards and Technology (NIST) validated equipment with current FIPS 140-2 certificates.

6.14.2. CAP must be prepared to use encryption IAW tasking agency requirements. Customer requirements for encryption may limit the usefulness of non-encrypted radios on AF assigned missions and some corporate missions. Communications managers must assign resources with this potential in mind. Non-encrypted radios will still be useful for many support roles and most non-mission communications.

6.14.3. Systems used to interconnect repeaters and remote base stations must support encryption at all times. Any new system of this type must automatically retransmit original encrypted signals without unsecure intermediate decrypting and re-encrypting. In other words, signals that were originally encrypted may not be passed through unsecured networks unless preserved in their original encrypted form.

6.14.4. When available and funded, National Headquarters may also deploy HF encryption and may specify rules and procedures for use of HF encryption.

**6.15. Communications Leadership Development.** Communications Program managers at all levels should always be training their successors, including volunteer Communications managers at the unit, group, wing, region, and national levels.

6.15.1. It is widely considered poor management when only one person has the knowledge and ability to perform specific management functions. Known as a “single point failure”, such a structure limits continuity of effective management, should the person with the knowledge be unable to perform the required management functions.

6.15.2. This development of the “next generation” of communications managers is accomplished through mentoring, seeking input, delegating responsibility, and encouraging professional development and growth with respect to the Communications management background and ability of all candidates for future leadership roles.

6.15.3. In many cases, this development of new leadership is done via formal appointment as an assistant communications staff member. It may also be performed through informal grooming of communications staff in subordinate units.

6.15.4. Regardless, staff members performing critical communications management functions should always have trained back-up personnel who can also perform those functions.

## Chapter 7 - RADIO STATION OPERATION AND PROCEDURES

**7.1. Requirements for Operating a CAP Radio Station.** CAP radio stations are authorized by the Federal Government through the NTIA for emergency, training, and operational activities. Members are authorized for unsupervised operation of CAP radio stations IAW paragraph 6.3. Only active CAP cadet, cadet sponsor, and senior members are authorized to operate CAP radio stations. Other membership categories, such as patron, retired, or aerospace education members, are not authorized to receive radio operator training or use CAP radios without supervision. No CAP member may begin radio operator training without first completing online CAP Operational Security (OPSEC) Training and having agreed to the online non-disclosure agreement. OPSEC training can be accessed by creating a new membership account in eServices, and is required before the eServices account is activated.

**7.2. Safety.** Each CAP radio station should employ safety procedures appropriate to the equipment, facility and installation. Communication officers at all levels are expected to exercise judgment and due diligence to maintain safe operation of equipment and safety of personnel.

### 7.2.1. Equipment Adjustments.

7.2.1.1. Radio operators will make routine adjustments only. Adjustments that require the removal of panels or chassis from the equipment cabinet may be performed only by competent maintenance personnel as described in paragraph 1.6.

7.2.1.2. Maintenance personnel will not attempt to adjust any part of communications equipment when there is a possibility of receiving injuries from unprotected high-voltage components. Under no circumstances should equipment repairs be attempted on any electronic equipment with the power source connected.

**7.2.2. Equipment Grounding.** All base stations should be adequately grounded, as judged by the Communications Officer or CUL to be appropriate to the equipment, facility and installation. Mobile equipment mounted to the body of a vehicle does not require an external ground.

**7.2.3. Fuses.** Replacement fuses should be of proper capacity per the equipment manufacturer. The use of tin foil, solder or any other unauthorized material is forbidden. Such practice creates a potential fire hazard, may result in extensive damage to the equipment and jeopardizes the safety of the operator.

**7.2.4. Power Switches.** All personnel having access to the radio station should be familiar with the location of the power switch(s), if such switch(s) or circuit breaker(s) exist and are available to operators.

**7.2.5. Antenna.** The primary power sources should be removed from all transmitters during periods of antenna maintenance. When there is a risk of lightning, fixed radio equipment should be disconnected from external antennas and the antenna leads grounded or removed from the building. It is good practice, but optional, to disconnect the antenna from the radio any time the radio is not in use, unless there is proper lightning protection. Other antenna lightning arrestors or grounding switches should be installed as appropriate or in accordance with the requirements of the site owner. Special safety precautions should be taken when erecting antennas in the vicinity of electric power lines.

**7.3. Emergency Electrical Power.** Each message center station ideally should be equipped with an emergency power source, whenever possible, whether battery or generator powered, to permit

operation should commercial power fail. Emergency power operation, including battery backups, should be performed at least once a month to ensure operational readiness when needed. Primary operators of stations with emergency power should know:

7.3.1. The location of power unit and how to gain access.

7.3.2. If a generator, how to refuel, check oil, and start and stop the engine.

7.3.3. Ground safety rules, such as the operation of a gasoline engine, hazards involved in gasoline storage, carbon monoxide hazards, the operation and location of a suitable fire extinguisher, and special safety procedures for venting of batteries and acid handling, if applicable.

**7.4. Network Architecture.** The routine functioning of the overall CAP Communications Network is structured hierarchically, with national, regional, wing, group, and local tiers, but functioning adaptively to optimize traffic delivery in order to provide continuity of communications for tactical and Command and Control (C<sup>2</sup>) communications. At each level, operators who are assigned corporate radio assets have certain responsibilities and expectations. National and region tiers of the overall system use conventional HF voice nets and HF/ALE. Wing and group tiers use conventional HF voice nets, HF/ALE, and/or VHF-FM, as needed. Squadron and flight tiers typically use VHF-FM and ISR radios. The CAP National Communications Plan, available in the Communications section of eServices, details the operation of these nets.

7.4.1. **National Traffic Net.** The national-level nets of Civil Air Patrol, known collectively as the National Traffic Net (NTN), serve as the primary conduit for cross-country message traffic.

7.4.1.1. The NTN includes conventional voice nets at scheduled times on multiple National Reserve Channels; voice HF/ALE stations on Net 9; and digital HF/ALE stations on CAP Net 10. Operation of the NTN is governed by the National Communications Plan and is updated from time to time, as requirements and solutions evolve.

7.4.1.2. Each wing shall be represented on the NTN multiple times a week, ideally daily, in order to be available for traffic relay and delivery. Regions should also be represented daily on the NTN and the region communications plan must also provide for message delivery to region-level addressees via relay from subordinate wings.

7.4.2. **Region and Wing Networks.** Region networks include conventional HF voice nets and HF/ALE duty stations. Each CAP region is assigned channels to be used as the HF suite for region and wing ALE and voice communications, designated as CAP Nets 1-8.

7.4.2.1. Each wing and region shall conduct at least one conventional voice net a week for training purposes, and shall have at least one HF-ALE station on duty for C<sup>2</sup> and tactical continuity of communications. These stations shall be attended and operated in accordance with the CAP National Communications Plan.

7.4.2.2. The operational readiness portion of wing and region communications program may be measured by multiple metrics, including number of check-ins to higher level nets, including units at all levels checking in to the NTN; how regular/recent check-ins are from a given unit/wing/region; successful completion of formal traffic delivery; timeliness of delivery; accuracy of message content; and other variables.

7.4.3. **Group and Unit Networks.** Structure of nets functioning below the wing-level will be determined by multiple factors, including geography, spacing between units, and hardware availability, coordinated with wing communication managers. Generally, each unit below wing-

level which has ES-qualified operational personnel should have radios assigned (IAW the Table of Allowances), conduct training on that equipment regularly, and be available for missions in accordance with the Wing Communications Plan.

**7.4.4. Operating Procedures.** Operating procedures, voice net structures, proword use, call sign and functional designator use, and guidance on other operating procedures are found in CAPR 100-3, Radiotelephone Procedures, and in the National Communications Plan in the Communications section of eServices.

**7.4.5. ALE Sounding.** Only “on duty” NTN stations, assigned by the Net Manager, may sound on Net 9, as needed. Only “on duty” wing and region stations may sound on region HF suites, IAW the respective wing or region annual communications plan. Therefore, in routine operating environments, only “on duty” stations that are checked at least once a day for AMD messages may sound. Other stations are considered to be not available to relay traffic and therefore should not be transmitting. More detailed guidance is provided in the Communications Alert Level Action Guide in Attachment 2 of the National Communication Plan, available in the Communications section of eServices. The implementation of standardized ALE identifiers for message center stations (see para. 7.13.3.5.4) means that message center stations are not required to sound, except as directed to by the appropriate net manager or communications plan.

**7.4.6. VHF-AM.** Under NTIA rules, CAP is ONLY permitted to utilize the frequency 123.1 MHz in “coordinated search and rescue operations” for liaison communications among air and ground stations from other agencies. CAP stations should not use 123.1 MHz for internal CAP-to-CAP communication. This channel may NOT be used for training, non-search and rescue missions, or any other purpose. No other VHF-AM frequency is authorized for CAP ground station use, unless requested via DOKEF and authorized by an FCC licensee.

**7.5. Operational Discipline.** Communication managers at all levels are responsible for the operational control and discipline of frequencies assigned to CAP. Although continuous monitoring of frequencies is not expected, communications managers should be aware of the use of CAP frequencies by members under their jurisdiction and ensure proper operational discipline. Regular voice nets require Net Control Stations (NCS) and alternate Net Control Stations (ANCS). Frequencies in use for HF/ALE should also have NCS and ANCS’s appointed or approved by the appropriate communications program manager with jurisdiction over the frequencies. Details of net control procedures are found in CAPR 100-3.

**7.6. Station Logs.** Although radio station logs are primarily maintained by the NCS, any station receiving or sending formal traffic must record the required information in the local station log. Details can be found in CAPR 100-3, para. 1.11. Operators maintaining the station log may use CAPF 110, Communications Log, or software-based logs. If software logs are used, the information must be stored in a form where the data can be easily retrieved and a back-up exists. WMIRS unit logging complies with this requirement. The logs are kept for a minimum of 6 months. However, logs and formal messages that include mission activity must be maintained IAW CAPR 10-2 *Files Maintenance and Records Disposition* and may be stored with consolidated mission files.

**7.6.1.** For stations that maintain logs, the logs will show hours of operation, frequency designators or channels used, local message number and the message number from the sending station, time, stations with which communications were held, and the name of the operator on duty. Logs must use channel designators and not identify actual frequencies. The log shall be kept in an orderly manner and in such detail that required data is readily available.

7.6.2. As appropriate to the mission and requirements for interagency coordination, time entries may be recorded using either UTC time or local time (24 hour clock at the Incident Command Post location).

7.6.3. Logs must constitute a true and accurate record of communications activity. Written logs shall be maintained in ink. Logs kept on computer should be printed for storage, or backed up in a safe location for the required retention period. WMIRS radio logs comply with the requirements of this paragraph. Authorized mission personnel who have justification may correct invalid or incorrect entries.

**7.7. P-25 Digital Operation.** See paragraphs 6.13., 8.4., and 8.6.5. for guidance related to P-25 operation.

**7.8. Traffic Categories.** CAP radio traffic falls into two categories: formal and informal.

7.8.1. **Formal Traffic.** Official record traffic transmitted verbatim. Formal traffic involves policy matters, instructions, orders, reports, or other information to be preserved as written records. Formal traffic may be transmitted by voice, and also by digital means, when digital systems are authorized. Formal traffic is usually point-to-point but may also be broadcast in nature (see CAPR 100-3, para. 2.1.3. and 4.2.1.4.)

7.8.2. **Informal Traffic.** Any radio communications not in the form of formal traffic, including relaxed procedures during directed nets and other expedient or administrative communications. During actual missions and training, includes instructions to air and ground mobile stations, rapid exchange of target information, preliminary status reports, etc. Such traffic does not lend itself to the preparation of formal messages and, in most cases, will be a direct exchange of information between various participants in the mission. Although this traffic may be informal, the inclusion of traffic that is personal in nature is prohibited.

**7.9. Security of Transmitters.** Transmitters should be installed and protected so that they are not accessible to unauthorized persons. Locks or other devices should be used wherever possible to reasonably prevent operation of transmitters by unauthorized persons when the station is unattended. Access to rooms, buildings, or vehicles containing radio stations should be limited to authorized personnel by physical or policy means.

**7.10. Transmitter and Antenna Testing.** Adequate precaution should be taken to ensure that signals are not radiated when transmitter testing is in progress, using a “dummy load” where possible. Antenna testing, including antenna tuning, should be as brief as possible, typically only a few seconds, and done at times that do not interrupt higher priority traffic.

**7.11. Out-of-Wing Operation.** Operators of mobile stations sometimes have occasion to travel outside of their home wing. When operating in another wing, operators must be constantly aware of possible mission activity and during such periods must contact the appropriate NCS for permission to operate. When operational missions are not in progress, operation in another wing is still solely for the conduct of official CAP business. Before using any radio in the states bordering Canada and Mexico, check with the wing DC to learn what the operating restrictions are. Operation on CAP frequencies in Canada and Mexico is prohibited without express written authorization from National Headquarters.

**7.12. Inter-Wing Traffic.** Communications between wings via radio is encouraged. Except for traffic above the routine level, scheduled voice nets will not be interrupted unless prior coordination and approval is obtained from the appropriate NCS or director of communications.



Voice nets of other wings or regions may be used for confidence checks, training, and any other official CAP business. HF/ALE stations should not routinely operate on ALE suites assigned to other regions, except as required for actual and training operational missions. Organized tests and exercises between wings of different regions should be fully coordinated with the appropriate region and wing directors of communications. Units within range of VHF-FM repeaters that are located across wing/region boundaries may participate in VHF-FM nets and other communications, as long as it does not conflict with higher priority traffic.

**7.13. Station Identification.** CAP uses voice call signs, functional designators, ALE self-addresses, and FAA call signs.

**7.13.1. Voice Call Signs.** Within CAP, National Headquarters, each region and each wing are assigned Air Force Voice Call Signs (AFVCS). Call signs may be assigned to people, vehicles, facilities, or radios, as needed for mission accomplishment. These tactical call signs are suffixed with numbers assigned by the DC/DCS-COMM to individual stations. The suffix number for VHF and ISR will not exceed four digits and HF will not exceed two digits. The first numerically suffixed tactical call sign shall always be assigned to the commander, including blocks of call signs assigned to groups and subordinate units.

**7.13.2. Functional Designator Usage.** Functional designators may be used as an alternative to AFVCS call signs during operational missions and formal CAP activities. Details of their usage are provided in CAPR 100-3, *Radiotelephone Operations*.

**7.13.3. Aircraft Call Signs.** CAP corporate aircraft use the call sign “CAP” (pronounced “kap”) plus a three or four-digit number at all times, except as provided in para. 7.13.3.3. and 7.13.3.4. below.

**7.13.3.1.** Member-owned aircraft may also use a CAP call sign when on Air Force Assigned Missions (AFAM).

**7.13.3.2.** Wings and regions use the first two digits for their region/wing vehicle identity numbers, IAW CAPR 77-1, *Operation and Maintenance of CAP Vehicles*, as the first two digits of the call sign and devise a suitable plan for assigning the second two digits. Controls must be present in this plan to prevent two aircraft from using the same call sign simultaneously.

**7.13.3.3.** Wings with a zero as the first number of their vehicle identity number will drop the leading zero. Therefore, their aircraft call signs will have three digit suffixes. No other truncating of the call sign numbering is authorized, meaning all digits must be used.

**7.13.3.4.** CAP aircraft are not authorized to identify with functional designators on CAP frequencies with the single exception of the designator “Highbird” (and appropriate geographical prefixes and/or numerical prefixes or suffixes as necessary) which may be used solely to refer to the airborne relay function. Transmissions not pertaining to the airborne relay function must use the normally-assigned “CAPxxxx” call sign.

**7.13.4. ALE Identifiers.** Civil Air Patrol uses unique identifiers, coordinated with the Air Force, for identification during ALE operation. No deviations are permitted.

**7.13.4.1.** Wing ALE identifiers use the format “xxxxwgCAP” in which “wg” is the two-letter state postal code of the wing and “xxxx” is a four digit call sign number, with leading zeros, if appropriate. Example: The voice call sign TexasCAP 204 would use 0204TXCAP as its ALE identifier.



7.13.4.2. Region ALE identifiers use the format “xxxregCAP” in which “reg” is the three-letter region designator and “xxx” is a three digit call sign number, with leading zeros, if appropriate. Example: The voice call sign CAP West 100 would use 100SWRCAP as its ALE identifier.

7.13.4.3. Headcap ALE identifiers use the format “xxxNHQCAP” in which “xxx” is a three digit call sign number, with leading zeros, if appropriate. Example: The voice call sign HEADCAP 42 would use 042NHQCAP as its ALE identifier.

7.13.4.4. Message Center Stations at all levels use all zeroes for the digits in their ALE identifier. NTN duty stations use 000NTNCAP. Region ALE message center stations use the format 000regCAP. Wing ALE message center stations use the format 0000wgCAP.

**7.14. Interference Reporting Procedures.** Interference from stations outside CAP (except as provided in paragraph 11.8.) which degrades the ability of CAP to accomplish its missions should be reported through command or staff channels to NHQ/DOKEF. Any station affected by recurring interference may request an investigation through channels to identify the source. Whether the interference can be fully identified or not, it should be reported to the next-higher level of communications management, including all pertinent details and also describing steps taken to investigate or resolve it. CAP members may not, under any circumstances, contact any outside entity (FCC, NTIA, Air Force, etc.) regarding interference issues without explicit authorization via the CommPermissions process IAW Attachment 2, para. A.2.6. and para. 6.12.

#### 7.14.1. Types of Reports.

7.14.1.1. Initial Report. File a report as soon as possible after the beginning of the interference. Include all available data and send it up through command or staff channels to the NHQ/DOKEF. You may ask for DOKEF assistance in the initial report.

7.14.1.2. Supplemental or Follow-on Reports. Submit supplemental reports when you need to add to or modify information previously submitted. Include the date and time of the initial report and any previous supplemental reports and send them via the same route that you sent the initial report.

7.14.1.3. Closing Reports. Issue a closing report when the interference incident is resolved or requires no further action.

#### 7.14.2. Report Submission.

7.14.2.1. Check with equipment maintenance personnel to determine if the interference is the result of maintenance actions or an equipment malfunction.

7.14.2.2. Check with other stations in the geographical area to determine the area affected. Knowing if other nearby stations are experiencing the same type of interference may aid in determining the source.

7.14.2.3. When you suspect co-channel interference (interference between systems that have been assigned similar frequency allocations), check with wing/region communications officers to determine the location of frequency assignments that fall within the bandwidth of the victim receiver.

7.14.2.4. Determine the bandwidth, relative amplitude and modulation of the interfering signal with a spectrum analyzer, if available. Find the approximate bandwidth by varying the receiver frequency to determine the affected frequency band.

7.14.3. Exceptions to Reporting. Do not report an incident when the interference is transient noise from natural sources (for example, rain, solar activity, lightning and so forth).

**7.15. Altitude and Geographical Restrictions.** As a result of international treaties beyond the control of CAP, there are mandatory restrictions on CAP use of various VHF-FM channels in the Wings bordering Canada and Mexico. Where such restrictions exist, they shall not be more limiting than required by federal frequency management agencies and international agreements. It is imperative that all members be briefed regarding these restrictions prior to operating in any of these Wings. Current information on these restrictions may be found in the Communications section of eServices.

**7.16. Relay of Communications Traffic.** It is the long tradition of two-way radio communications that emergency and urgent traffic has priority and that all operators must be prepared to render assistance, as needed, to requests for communications assistance. The Civil Air Patrol Communications System exists to provide internal communications support to all users, which means traffic entered into the system is the responsibility of all operators.

7.16.1. Therefore, all radio operators and stations are expected to be prepared to provide communications support as required for overall mission accomplishment as part of the “adaptive” nature of the overall communications system, IAW the CAP National Communications Plan. This duty exists regardless of whether a communicator is formally signed in to a specific mission or activity.

7.16.2. Any station operator should comply with requests to relay traffic, formal or informal, for any CAP mission or activity on any CAP radio system on which they are qualified. This includes, but is not limited to, relays on VHF, on HF, between HF and VHF, into or out of any NTN net, and relay to other systems, such as telephone and Internet. Such customer service is often performed across wing and region boundaries, especially on HF.

## Chapter 8 - VHF OPERATION

**8.1. Concept of Operations.** The CAP communications program relies heavily on the use of VHF-FM because VHF normally provides excellent, dependable short-range communications. VHF is readily adaptable to ground and air mobile operations. In compliance with NTIA standards, all operation on CAP VHF-FM channels is narrowband.

**8.2. National Programming Plan.** The programming and channelization of CAP VHF/FM equipment is managed IAW the National Programming Plan. See paragraph 6.13.

**8.3. Simplex Operations.** Simplex operations are those that are conducted on a single frequency. Within CAP, these frequencies must be used solely for communications between active CAP stations and must not be used to meet infrastructure requirements such as repeater inputs and similar applications. Any exceptions to this must be approved in writing by the NHQ/DOK.

8.3.1. **GUARD Channel.** A Guard channel is a common channel monitored by all units to allow short-term contact, regardless of what other operational channels the station may be using. The channel designated "CAPGuard" (pronounced "kap-gard") is restricted to use ONLY for calling and then immediately moving to another channel. To the maximum extent possible, all CAP stations should maintain a constant listening watch on this channel, which is pre-programmed into CAP corporate VHF radios. It is essential that this channel remain available for use as a guard channel for all stations. Therefore, after making contact on this channel, stations must change to a different channel to conduct their business. Only in an actual emergency directly involving one of the stations may this channel be used for ongoing communications.

8.3.2. **Simplex on Repeater Frequencies.** The use of simplex operation on the repeater output channels, sometimes referred to as "Talkaround", is not authorized for regular communications. This mode may be used strictly as a "calling channel" to establish initial contact, only when use of CAPGuard is not feasible, after which communications must move immediately to another channel. This use is limited to situations where no other mode is successful in establishing communications. Any other use of the output channels, such as conducting nets, is not authorized. Use of repeater input channels for simplex operation is not authorized.

8.3.3. **Subaudible Codes.** All CAP Simplex channels have designated subaudible codes for both transmission and reception listed in the National Programming Plan. These codes, either analog or digital, shall be used at all times by all CAP stations unless otherwise authorized in writing by the NHQ/DOK. The one exception to this rule is that during operational missions, CAP stations may temporarily disable tone reception, using the standard front panel control as dictated by mission requirements.

**8.4. Repeater Operations.** Repeater stations provide significant benefits to CAP by increasing the effective range of base, mobile and portable stations utilizing them. However, this increased range can also cause interference problems between unrelated operations and missions. Proper planning must be used to ensure that repeater operations do not cause unacceptable interference.

8.4.1. **Designators.** Repeater stations in CAP are assigned Designators based on which frequency pair and Continuous Tone-Coded Subaudible Squelch (CTCSS) tone/Network Access Code (NAC) they use as their primary discrete access. These designators are in the format of: Rxx, where "xx" is a number between 01 and 99, and followed by a "P" when required to indicate Digital (P-25) transmission. Leading zeros in these numbers must be included to avoid confusion.

The repeater channels are programmed in accordance with the Standardized National Programming Plan (NPP).

**8.4.2. Access.** Every CAP repeater, whether fixed or tactical, must be accessible with both a Primary Discrete Continuous Tone-Coded Subaudible Squelch (CTCSS) tone AND a Primary Discrete P-25 Network Access Code (NAC) as approved by the National Repeater Coordination Group (NRCG). These two Primary Discrete codes must correspond. Additional codes may be installed if approved in writing by the NHQ/DOK. Additional installed codes, however, are inadvisable as they may result in significant repeater activation delays. Repeaters shall NOT be programmed to respond to carrier-only signals. All repeaters must encode their Primary discrete CTCSS tone or NAC, dependent on mode.

**8.4.3. Tactical Repeaters.** Tactical repeaters may be used in temporary fixed, mobile, or airborne operations. Use of such systems is limited to operational missions (including training), emergencies, temporary fixed site restoration, scheduled tests, and other short term activities. Approval of the wing director of communications or higher is required before each use, except emergency use and during authorized missions. If interference to an adjacent wing or region might be experienced in a non-emergency situation, the request must be approved by the Region Repeater Committee(s) prior to use. All technical standards, as described in this regulation, will be met by any equipment authorized as a tactical repeater system.

**8.4.3.1. Unique Frequency Pair.** A unique channel (unique frequency pair) is allocated for Tactical Repeaters ONLY. A total of five channels use this frequency pair. These channels should be used for all Tactical repeater operations unless interference to the fixed repeater infrastructure has been fully precluded. See the national channelization and programming plan.

**8.4.3.2. Tactical repeaters on fixed repeater frequencies.** The standard programming of tactical repeaters includes each of the two fixed repeater frequency pairs with a unique CTCSS tone, not used by any fixed ground repeaters. This unique tone shall not be used as an encode or decode tone on any permanently-installed ground-based repeater station. If a tactical/portable repeater is used for short-term replacement of an out-of-service fixed repeater, it will use one of the existing ground channels already programmed in the repeater.

**8.4.3.3. Aircraft Connections.** Members installing tactical repeaters in CAP aircraft MUST ensure that the aircraft has properly wired auxiliary power and antenna connections, or that appropriate adapter cords are used. Power and antenna connectors on the repeaters may not be modified to meet local aircraft wiring.

**8.4.3.4.** Where VHF-FM repeater coverage crosses wing/region boundaries, stations may check into nets of units across the boundary, as long as they do not interfere with higher priority traffic. Cross-border VHF-FM communications is encouraged, particularly when it can facilitate relay of traffic from HF nets and facilitate joint activities.

#### **8.4.4. Repeater Control.**

**8.4.4.1.** A time-out timer is required on all repeaters. This device will turn off the repeater's transmitter if there has been a period between 2 minutes and 5 minutes with no break in the reception of an incoming signal. This will prevent jamming due to equipment malfunctions, stuck microphones, etc. This also will protect the repeater from possible damage.

**8.4.4.2.** Remote control of repeaters may not be conducted on standard CAP narrowband frequencies. If remote control of a repeater by an RF link is desired, NHQ/DOKEF must be

contacted so that an attempt may be made to obtain authorized Air Force frequencies for this purpose. All equipment used for this purpose must be compliant with current NTIA technical requirements.

8.4.5. **Multi-Mode Required.** All CAP repeaters, including tactical repeaters, must be capable and programmed to respond to either analog or digital P-25 signals, meaning that regardless of whether the radio is set on an analog or digital channel, it will receive signals transmitted in either mode. Unless specifically authorized in writing by the NHQ/DOK, no narrowband VHF-FM repeater may be operated with access limited to only one mode. No analog-only repeaters are authorized.

**8.5. Repeater Management.** As explained in paragraph 6.1.3, the CAP repeater system is DoD funded and controlled centrally in order to provide a standardized system that meets the needs of CAP's internal and external customers. However, each actual repeater is located based on certification from the wing that the site is vital to mission accomplishment. Therefore, the overall repeater system is based on wing strategic planning and mission experience, as well as National Headquarters implementation of validated requirements of customers. The result is that the CAP repeater system is a shared infrastructure with management and funding responsibilities shared among the wings, regions, and National Headquarters.

8.5.1. **Wing Responsibilities.** Wings hosting CAP repeaters are responsible for the following management functions:

8.5.1.1. Planning and locating mission effective sites and securing written permission to use the site, such as when an existing repeater needs to be relocated.

8.5.1.2. Application for internal CAP authorization to use the site via the Repeater Application and Review System (RARS), which must be followed by amendment of the TA by CAP-USAF.

8.5.1.3. Placing the repeater on the air, when internal and external permissions have been received.

8.5.1.4. Ensuring that the repeater operates using the parameters and settings specified in the RARS authorization, and compliance with other policy related to repeaters.

8.5.1.5. Ongoing routine maintenance, IAW paragraphs 1.6.

8.5.1.6. Notification of NHQ/NTC at any time that a maintenance or repair issue develops that is outside the scope of paragraph 1.6., both informally and via the maintenance system in the Communications section of eServices.

8.5.1.7. Updating the on-line repeater directory to identify any repeater off the air for longer than 24 hours IAW para. 6.10.2.

8.5.1.8. Packing equipment securely, when needed, for shipping to and from the NHQ/NTC and support for pick-up and delivery.

8.5.1.9. Providing for all expenses related to ongoing repeater operation, including but not limited to: all site, space, and tower rental and lease costs; permit fees; and access charges.

8.5.1.10. Installation and programming updates of mobile and base radios that use the repeaters.

8.5.1.11. Routine maintenance of equipment (regular cleaning, checking connections and equipment installation, replacing antenna connectors), including replacing modules determined to be defective, when exchanged by NHQ/NTC.

**8.5.2. Region Responsibilities.** Regions are responsible for the following management functions related to repeaters:

8.5.2.1. Advance coordination of proposed repeater frequencies and tones.

8.5.2.2. Reviewing proposed sites and permissions, and certification of need in the Repeater Application and Review system.

8.5.2.3. General program management oversight with respect to wing management of repeater assets.

**8.5.3. National Headquarters Responsibility.**

8.5.3.1. Initial funding and procurement of repeater hardware via the DoD Program Objective Memorandum (POM) process, as authorized in the TA.

8.5.3.2. Seeking DoD funding for life cycle replacement of repeaters, including antennas, feedline, and related materials used in repeater installations.

8.5.3.3. Processing of special permissions outlined in paragraph 6.12.

8.5.3.4. General program management oversight with respect to region and wing management of repeater assets, including establishment of national policy related to repeaters.

8.5.3.5. Support for installation and major maintenance of repeaters, including distribution of replacement modules, when defective.

**8.5.4. National Repeater Coordination Group (NRCG).** The NRCG is the body that reviews and approves requests from the wings to make changes in the national repeater system. The NRCG consists of 16 voting members, two from each region appointed by the region commanders to act on their behalf. When a wing develops a request for a new or modified repeater, it is first submitted for region approval. If approved at the region level, it is referred to the NRCG through an electronic system in the Communications section of eServices. CAP Command and CAP-USAF must provide final approval before the Table of Allowances for repeaters is amended and the wing has final approval to activate the proposed repeater site. For more information, see the NRCG Charter in the Communications section of eServices.

**8.5.5. Region Repeater Committee.** The Region Repeater Committee is a committee that functions at the region level to pre-coordinate requests from the wings to make changes in the repeater infrastructure within the region and to remediate conflicts both within and between regions in the repeater system. If needed, the committee may coordinate with adjacent region repeater committees to de-conflict proposed assignments and to work out solutions. Applications approved by the Region Repeater Committee are subsequently reviewed and approved by the NRCG via the Repeater Authorization and Review System (Attachment 2, para. A.2.21.).

**8.6. FM Digital Communications.** Project 25 (P-25) digital communication is conducted IAW the following guidance. Any other digital mode must be pre-approved by NHQ/DOK before use. P-25 guidance is as follows:



**8.6.1. Use:** Mission communications nets and activities should operate in P-25 digital mode as a first preference. When P-25 operation is not feasible, such as when communicating with CAP aircraft equipped with analog-only radios or when using liaison frequencies, analog operation is acceptable.

**8.6.2. Reporting.** Units are encouraged to experiment and test their P-25 capability and to report their findings and impressions to NHQ/DOKE and other communications program managers. Testing and reports should be coordinated through communications staff channels.

**8.6.3. Compatibility.** The CAP VHF-FM system is engineered to use the capabilities of DoD-supplied equipment assigned in accordance with the Table of Allowances. Members owning older equipment of lesser capability shoulder the burden of compatibility. Member-owned radios capable of P-25 operation should be programmed as "Mixed-Mode" receive on both their analog and digital CAP channels, to the maximum extent possible. All CAP radio operators are required to "listen before transmit." Analog-only users should familiarize themselves with the sound of digital modulation in order to facilitate this process.

**8.6.4. Standards.** Digital audio operation will use P-25 Common Air Interface (CAI) modulation only.

**8.6.5. Encryption/Scrambling.** Mission communications nets and activities may use encryption, as appropriate to meet mission requirements. Only approved keying material provided by NHQ/NTC or a partner agency authorized by NHQ/DOK may be used. Use of locally constructed encryption keys is prohibited. Only approved encryption algorithms may be utilized. When working with other agencies, CAP must conform to those agencies' rules and procedures for using encryption systems. NHQ/DOK or NHQ/NTC may provide further guidance about use and programming of encryption in CAP radios, to be found in the Communications section of eServices. Encryption keys may not be programmed into member-owned radios without written authorization from NHQ/DOK.

**8.6.6. Data via radio.** NHQ/DOK may select and authorize systems for transmission of data via HF or VHF radio, such as computer files or position reporting. All other proposals for transmission of data via CAP radio systems must be fully coordinated and have potential for use across the country. Because CAP frequency assignments may not all be authorized for digital data modes, all experimentation must be coordinated in advance with NHQ/DOKE.

**8.7. Disposal of Repeaters.** In most cases, unneeded narrowband Quantar repeaters will be returned to the NTC for redistribution, rather than approved for disposal. Regardless of the circumstances, repeaters are NHQ asserts and all status changes, including return or disposal, shall be approved via the Repeater Authorization and Review System (RARS), coordinated in advance with NHQ/NTC, and done in accordance with CAP-USAF instructions.

## Chapter 9 - FREQUENCY UTILIZATION

**9.1. CAP Frequency Policy.** Radio frequency assignments to CAP are made by the Air Force using standard procedures for federal and military radio spectrum, including compliance with relevant international treaties and agreements. These assignments are limited in number and are vital to mission accomplishment by CAP. Therefore, strict compliance is required with a wide range of rules for federal spectrum users, and with the specific provisions of the frequency authorizations.

**9.2. Frequency Utilization.** CAP radio operators may make maximum use of authorized channels on a first-come, non-interference basis. Nets may be scheduled on appropriate frequencies IAW paragraph 7.4. Regardless of the circumstances, all use of CAP channels must be for legitimate business of Civil Air Patrol.

**9.3. VHF-FM Assignments.** CAP's VHF-FM frequency assignments are on a nationwide (United States & possessions) basis, with some exceptions in border zones. In order to facilitate inter-and intra-operability when CAP personnel deploy across wing or region boundaries, CAP uses a mandatory national VHF-FM programming and channelization plan, IAW para. 6.13.

**9.4. HF Assignments.** Each region is assigned a suite of HF channels, updated from time to time, and wings and regions must select appropriate channels based on mission requirements. No one channel should be given preference over another, except as dictated by propagation characteristics and the immediate needs of the mission. In order to facilitate inter-and intra-operability when CAP personnel deploy across wing or region boundaries, CAP uses a mandatory national HF programming and channelization plan, IAW para. 6.13.

9.4.1. **National HF Assignments.** CAP has frequency assignments in multiple bands which are used for HF/ALE and for conventional voice communications. National-level channels include the National Reserve Channels (para. 9.5.); Net 9, for HF/ALE stations using conventional voice; and Net 10, combining HF/ALE and data communications technologies. HF channels are configured and managed in accordance with the National Programming Plan, National Communications Plan, and other guidance in the Communications section of eServices.

9.4.2. **Region HF Assignments.** CAP regions are each assigned frequencies in multiple bands which are used for HF/ALE and for conventional voice communications. Region HF suites are designed to contain a sufficient number of channels to provide coverage across the region in all normal propagation conditions. Regions are expected to use all of their HF frequency assignments for ALE operation. Operators on voice nets on the same channels must understand that they may occasionally be interrupted by ALE sounding. Conventional voice net operation on one or more of the region frequencies will be documented in the appropriate wing and region Communications plans, updated as needed IAW paragraphs 2.2.3. and 2.2.4.

9.4.3. **SHARES.** National Communications System Shared Resources (SHARES) stations from government agencies may occasionally be heard using these frequencies to contact CAP stations participating in the SHARES program. See para. 11.4.

**9.5. National Reserve Channels.** The channels NRA, NRB, NRC, and NRD are national voice-only HF channels and are reserved for NTN nets and other conventional nets spanning more than a single region. ALE operation is not conducted on these channels. NTN activation may be requested for high OpsTempo mission nets, IAW the Communications Alert Levels Actions Guide in the National Communications Plan. They will be used with the following guidelines:

9.5.1. These channels are authorized for use by all CAP stations for communications concerning all matters relating to official CAP business.

9.5.2. Actual mission communications always takes precedence over other types of CAP communications on these channels.

9.5.3. No regularly scheduled nets will be conducted on these channels, other than the NTN nets, unless approved by NHQ/DOKO.

**9.6. Channel Priority.** Emergency communication has priority over all other traffic on CAP channels. Emergency communications are those involving the IMMEDIATE safety of life or property. Note that CAP operational missions are not automatically defined as emergency operation. Because CAP plans and trains for missions in which lives and property may be in danger, such missions are conducted using trained standard procedures, rather than “anything goes” improvisation. During periods other than true emergency, mission communications has priority over training and other authorized communications. See CAPR 100-3 for more information on message precedence.

**9.7. Calling Channels.** Each headquarters may designate a “calling channel” which may be used when there is no active net in progress to call other CAP stations. Stations are encouraged to monitor the calling channel(s) of their own or higher headquarters. On VHF, the calling channel is normally the local repeater or CAPGUARD. On HF, calling channels are normally NRC or NRD, or channels designated by region headquarters.

**9.8. Temporary Authorizations.** In the event that no assigned frequency is usable for an active Communications requirement, additional channel assignments may be requested. Wings should coordinate with the region DCS/Comm for a regional solution. If a channel assigned to CAP but not to the region where needed must be requested, the region DCS/Comm will coordinate the request with NHQ/DOKO. The duration of any temporary frequency authorization under this paragraph will be set by NHQ/DOKO as agreed upon by the wings and regions involved. If temporary frequency resources not currently assigned to CAP are required, NHQ/DOKEF is responsible for coordination.

### **9.9. Radio Net Schedules.**

9.9.1. Wing and region HF voice nets using the region HF suite are coordinated at the region level, with information copies to NHQ/DOKO. Schedules for national voice nets on national frequencies are coordinated by NHQ/DOKO. Updated HF and VHF net schedules may be found In the Communications section of eServices.

9.9.2. VHF net schedules are coordinated and established at the wing level. Where VHF coverage crosses wing boundaries, cross-wing operation is encouraged, but the respective wing DCs should coordinate the net schedules.

**9.10. Intra-Squad Radios (ISR).** The primary use of ISR radios is for ground team members to communicate among themselves when away from their vehicles, as well as other short-range ground communications.

9.10.1. ICOM 4008M ISR radio channels 10 and 11 are not authorized for use by Civil Air Patrol. CAP has national authorizations for the remaining ISR channels, however channels 10 and 11 were reallocated for other government agency use.

9.10.2. Except for the channel restrictions in para. 9.10.1. above, ISR radios are authorized for all CAP units and activities, except that they shall NOT be utilized in flight and may not conflict with other federal users. Only radios specifically manufactured for the ISR service are authorized and they will not be modified in any way, including the addition of external antennas or amplifiers. Because these radios operate only on federal frequencies, use of ISR radios for personal communications is prohibited.

9.10.3. ICOM 4008M ISR radios are NTIA compliant for their frequencies and have full approval for CAP use, except for the channel restrictions in para. 9.10.1. above.

**9.11. Family Radio Service (FRS).** While use of ISR is preferred, the use of FRS radios is authorized IAW NTIA Regulations section 7.5.8. FRS radios are authorized for all CAP units and activities not directly supporting Emergency Services (actual missions and training). Emergency/disaster response, medical communications, and command and control communications are examples of emergency services functions which are prohibited from using FRS.

9.11.1. **Limited Emergency Services FRS Use.** One exception to the prohibition against ES use of FRS is when attempting to contact victims or the objects of a search. If it is believed that the victims or search target may be carrying FRS, ES personnel MAY use FRS in an attempt to contact the victims directly, including transmissions from CAP aircraft. FRS will not be used for operation among ES personnel or for any other manner of ES communications support.

9.11.2. **Permissible FRS Use.** Some examples of permissible FRS activities include encampments, air shows, fund raisers, model rocketry, ballooning, conferences, meetings, and non-ES activities of a similar nature. They would also be ideal as a hands-on training tool for communications classes such as demonstrating how to call other stations, transmitting and receiving formal traffic, and simulated ES radio traffic. Except as provided in para. 9.11.1. above, FRS radios may not be used while airborne.

9.11.3. All FRS radios and operations must meet FCC Part 95 rules, including the necessity of using FCC-certified FRS equipment. FRS radios shall not be modified in any way.

**9.12. General Mobile Radio Service (GMRS).** GMRS is a separate FCC service which may operate on some of the same frequencies as FRS, but at higher power. Unlike FRS, GMRS is a licensed service. A license for a specific geographical area is required and fees are charged by the FCC for this service. Use of GMRS frequencies by CAP is specifically prohibited by the Air Force.

**9.13. FRS/ISR Procedures.** Operations with either ISR or FRS radios should use normal CAP operating procedures, including call signs. To operate either FRS or ISR without supervision, operators must be qualified as a radio operator under paragraph 5.2. of this regulation.

9.13.1. **Shared Frequencies.** Both ISR and FRS radios operate on frequencies shared with other users, except for the channel restrictions in para. 9.10.1. above. In the case of ISR, these will be other federal spectrum users; with FRS, it could be almost any member of the general public. When establishing and conducting operations with these radios, operators must be alert and ready to take appropriate action if they encounter other users on the operating channel. Both ISR and FRS are "common use" channels and no user has priority over another. However, to avoid interference, moving to another channel may sometimes be the best course of action. While use of "tone codes" or "privacy codes" may increase interference reduce interference, they are often not sufficient and their use is discouraged. An organized plan to change frequency if necessary to an alternate is recommended.

9.13.2. **Security Consideration.** CAP's communications on ISR or FRS radios have the potential to be monitored, either by federal agencies or by the general public. As with all unencrypted radio communications, it is important that CAP radio operators conduct themselves professionally and preserve operational and communications security.

**9.14. Limited Support for Amateur Radio Training.** In CAP units making use of amateur radio as a unit activity, corporate radio equipment that is no longer NTIA compliant, and therefore is no longer authorized for operational missions, may be used on amateur frequencies. Equipment used for this purpose shall have all CAP frequencies and/or frequency determining elements removed. At no time shall CAP members use amateur radio frequencies to conduct of Civil Air Patrol business or missions, IAW paragraph 11.3. Operation on amateur radio frequencies requires an FCC-issued amateur radio license, or an FCC-licensed amateur radio operator, with appropriate privileges, IAW 47CFR97.

**9.15. Cellular Telephone Use.** In accordance with the FCC rules governing use of the cellular telephone system, cellular phones may not be used in aircraft in flight on frequencies licensed under Part 22. Part 22 governs the 800 MHz band of cellular frequencies. Part 24 governs the 1800-1900 MHz band of cellular frequencies and is not restricted from use in aircraft in flight. However, no currently-available consumer-grade cellular phone or data card can be restricted to 1800-1900 MHz. Therefore, standard cellular equipment shall not be used in flight with the exception of specially modified equipment authorized by National Headquarters. Cellular equipment includes voice, text messaging, wireless Internet, and all other functions of cellular phones, data/air cards, and mobile devices that use 3G/4G, such as smart phones and tablet computers.

**9.16. Emergency Communications.** No provision of this regulation prevents the use of any means of communications available when time-critical communication is necessary for the immediate safety of life or protection of property, including air emergencies in CAP aircraft, fires, and serious injuries from traffic accidents. This provision does not include situations when a person's life or property MAY potentially be endangered, such as a typical CAP mission when the target has not yet been found.



## Chapter 10 - CAP FREQUENCY SPECIFICATIONS

**10.1. Technical Requirements.** The following technical requirements apply to all CAP frequency assignments:

10.1.1. **NTIA Compliance.** All radio equipment utilized by CAP on DoD-allocated spectrum must be compliant with NTIA requirements as listed in the current edition of the Manual of Regulations & Procedures for Federal Radio Frequency Management (“Redbook”). Copies of this manual may be downloaded from the NTIA website at: <http://www.ntia.doc.gov/page/2011/manual-regulations-and-procedures-federal-radio-frequency-management-redbook>. For more information see the “Equipment Compliance List” in the Communications section of eServices.

10.1.2. **Emission.** The following types of emissions are used for CAP radio communications. Authorized emissions are:

10.1.2.1. 3K00J3E, single-sideband suppressed carrier (SSB). Upper Sideband (USB) only.

10.1.2.2. 3K00H2B ALE signaling

10.1.2.3. 11K00F3E, frequency modulation (FM).

10.1.2.4. 8K10F1E, P-25 Digital voice modulation.

**10.2. Standards for Radio Stations.** To reduce interference in the overcrowded frequency spectrum and to comply with international agreements and NTIA regulations, CAP communications personnel will make certain that radio stations are on the proper frequency and the emissions meet the prescribed standards for the applicable CAP frequency assignment. Communications managers are encouraged to develop structured preventative maintenance programs to regularly check radios, repeaters and other communications systems for proper operation. Liaison radios designated and programmed to operate solely on FCC-licensed channels must have the appropriate FCC Type-Certification, but need not be NTIA compliant.

**10.3. Frequency Measurement.** The assigned carrier frequency of all CAP stations shall be measured by qualified maintenance personnel in accordance with paragraph 1.6. of this regulation.

10.3.1. Frequency measurements will be required as follows:

10.3.1.1. At any time the station operator has reason to believe the frequency has shifted beyond the tolerance specified.

10.3.1.2. After a station has been cited for a frequency violation (either by competent authority or by any CAP operator deemed capable of performing accurate frequency measurements).

10.3.1.3. When maintenance is performed that could affect frequency accuracy.

10.3.1.4. In accordance with other optional wing/region policy.

10.3.2. Each frequency measurement should be recorded and filed. Wings and regions may set policy governing such recording and/or filing.

10.3.3. Radio transmitters shall be silenced immediately upon determining that the transmitter frequency error exceeds the authorized tolerance. Notations of actions taken to re-establish the



transmitter within authorized tolerance will be entered in the station log or kept in the station file. Maintenance actions should be entered in the ORMS maintenance record.

**10.4. Transmitter Power.** For CAP stations using amplitude modulation (AM) or frequency modulation (FM) emission, the transmitter power authorized will be the mean envelope power. For CAP stations using SSB, the power authorized will be in terms of peak envelope power (PEP). In any event, transmitter power output (TPO) will be limited to the following:

10.4.1. VHF base, mobile or portable ground stations: 50 Watts

10.4.2. VHF Repeaters: 100 watts output from the duplexer or combiner, or as otherwise provided in the Repeater Application and Review System database site authorization, as approved by CAP Command and CAP-USAF and entered into the Table of Allowances.

10.4.3. Aircraft stations are limited to 10 Watts on VHF-FM. The VHF-FM frequency authorizations held by CAP prohibit higher power by airborne stations.

10.4.4. HF stations (national, region and wing) shall not exceed the rated power of the NTIA compliant radio.

10.4.5. Only external power amplifiers that comply with NTIA standards and are approved by the CommPermissions process (see Attachment 2, para. A.2.6.) may be used as part of CAP stations.

10.4.6. Because of international agreements and other legal issues, CAP may need to restrict transmitter power below these limits in certain geographical areas, including in the vicinity of the international borders IAW paragraph 7.15. Operators entering those areas should make themselves aware of any restrictions in effect.

**10.5. Data Frequencies.** CAP National Headquarters may allocate certain frequencies or channel authorizations for data communications. If authorized, details will be provided to Communications managers via the CAP-DC listserv and posted in the Communications section of eServices.

## Chapter 11 - INTERAGENCY OPERATIONS

**11.1. General.** Many federal and local agencies have installed radio systems to meet their day-to-day or emergency needs. The key to interoperability with partner agencies is advance planning. Communications managers must strive to anticipate potential interoperability requirements and plan accordingly. However, we must also remember that interoperability (liaison communications) is limited to coordination between cooperating agencies. No agency shall use the frequencies of another agency for its own internal communications. With proper coordination, a CAP partner agency can come to CAP frequencies for coordination but they cannot use CAP frequencies for their internal communications. Similarly, CAP can make advance arrangements to access other agencies' frequencies to coordinate operations but CAP may not use their frequencies for internal communications.

**11.2. Communications Inter-Operability with military units.** Civil Air Patrol radio stations must have specific frequency authorization to operate on USAF and other military frequencies, obtained via the CAP spectrum management office (see para. 6.2). Active duty, reserve, and guard military units must have specific frequency authorization to operate on CAP frequencies, obtained through their respective spectrum management channels. Before releasing CAP frequency information to military units, CAP members must obtain authorization via the CommPermissions process, IAW para. 6.12. IAW para. 11.8.2, CAP stations should support requests from unexpected call signs making legitimate requests for relay or other support.

**11.3. Use of Amateur Radio Service by CAP.** CAP members acting in any CAP capacity may not use amateur radio frequencies on behalf of CAP, with narrow exceptions, as provided in para. 11.3.3. below.

11.3.1. When the Civil Air Patrol conducts operational missions for the Air Force, it functions as an "instrumentality of the United States", IAW CAPR 20-1, *Organization of Civil Air Patrol*, paragraph 1.4. Because CAP uses federal frequencies managed by the NTIA and assigned to the Air Force, CAP is defined as a federal frequency user, regardless of the "customer." Under federal law and regulation, instrumentalities of the United States and federal frequency users are prohibited from encroaching on civilian frequencies regulated by the Federal Communications Commission, including amateur radio frequencies.

11.3.2. FCC rules prohibit conducting the business of any organization on amateur radio frequencies for pecuniary (financial) interest. Because CAP members receive Federal Tort Claims Act (FTCA) insurance and Federal Employee Compensation Act (FECA) insurance, CAP members have pecuniary interest while signed in to Air Force tasked missions and have the status of a federal employee.

11.3.3. CAP members who are signed in to a CAP mission may use amateur radio frequencies to communicate with other licensed amateur operators under limited circumstances, provided that all of the following conditions apply:

11.3.3.1. The CAP member is a licensed amateur radio operator, operating within the privileges of his/her license.

11.3.3.2. The communication is urgently necessary for the immediate safety of life or protection of property where other communication paths are not available.

11.3.3.3. The communication is not internal CAP traffic. Passing internal CAP traffic to other CAP members who are licensed amateurs, in lieu of using CAP equipment and channels, is prohibited.

11.3.3.4. Use of amateur radio is a “last resort” and no other feasible path exists.

11.3.4. For pre-planned tests and drills, sponsored by a governmental entity or by CAP directly, CAP use of amateur radio must be approved in advance by NHQ/DOK, separate from the WMIRS mission approval process. In order to use amateur radio during tests and drills, the scenario must provide for all other communication channels to have failed. CAP may not use amateur radio as the planned communication channel.

11.3.5. Licensed amateur operators who are signed in to a CAP mission may engage in personal/hobby communications using amateur radio during breaks from CAP duties.

11.3.6. Other than as provided in para. 11.3.3. above, where amateur radio is needed to support a CAP mission, CAP communication managers should seek the support of local amateur radio clubs and organizations. CAP members who are licensed amateur radio operators and who are not acting in any CAP capacity (e.g. not signed in to a mission) may exercise their amateur privileges and support affiliated amateur organizations using privately owned amateur equipment to provide traffic relay for CAP.

11.3.7. Amateur radio frequencies shall not be programmed into CAP-owned radios, including those purchased with local assets, except as provided in paragraph 9.14.

**11.4. Part 15 Devices.** Civil Air Patrol may use Part 15 devices, such as WiFi enabled computers, tablets and smartphones, however such devices may not be modified. If an external radio frequency power amplifier or amplifier kit is used, it must always be a complete system used in the configuration for which it is authorized (see NTIA manual para. K.3.1.1). Cellular service provider permission may be required in some cases before an external amplifier maybe used.

**11.5. National Communications System Shared Resources (SHARES) HF Radio Program.** The President of the United States issued Executive Order 12472 establishing interoperability objectives for all federal departments and agencies. In response to this order, the National Communications System (an element of the Federal Department of Homeland Security) established a program to identify federal HF radio assets and develop procedures to enable these resources to be used to pass National Security Emergency Preparedness (NSEP) message traffic (See NCS Directive 3-3). CAP was a major participant in the development and fielding of this program. CAP HF stations will pass SHARES message traffic on a non-interference basis with CAP traffic.

11.5.1. **Concept of Operations.** Federal entities rely on the public telephone system to conduct the government's day-to-day business. In emergency situations requiring coordinated federal response, the telephone system is expected to experience disruption and traffic congestion. Contingency communications must be available in such circumstances. Entities participating in the SHARES program have agreed to use their existing HF radio systems to pass emergency traffic for other agencies on a non-interference basis with their own missions.

11.5.2. **Procedures for Use.** CAP stations will normally be contacted on their assigned frequencies by federal agencies and asked to pass SHARES traffic. Since it is impractical to provide federal agencies with a list of all CAP stations, they will normally call us as follows - "ANY CAP STATION THIS IS (THEIR CALL SIGN) WITH SHARES TRAFFIC." Unless the

CAP stations on frequency are handling PRIORITY or higher precedence traffic, they will be expected to take and make every effort to pass the SHARES traffic. In most cases, the traffic will be addressed to distant states and require multiple relays through the CAP network to get to the addressee. CAP stations are authorized to use any CAP frequency assigned to any region to pass this traffic. CAP stations are also authorized to access specified frequencies of participating federal agencies to pass this traffic if it cannot be passed on CAP's frequencies. Each region and wing DC has been furnished with a directory listing these federal frequencies and will distribute them as appropriate. The Federal Government has identified this information as "FOR OFFICIAL USE ONLY" and release to non-CAP personnel may only be authorized by the NHQ/DOK.

**11.5.3. Message Forms.** All participating agencies have agreed to utilize the standard message form in passing SHARES traffic. This form may be reproduced locally, but not modified. Operators will relay message traffic exactly as received; do not change any part of the message. Operators may add clarifying routing instructions to the heading of a message, and, if necessary, operator notes to the end of a message.

**11.5.4. Tests and Exercises.** The federal frequencies used to support SHARES are also used daily by federal agencies to support essential government operations. CAP stations are not authorized on these frequencies to conduct radio checks. All CAP participation in SHARES tests and exercises will be coordinated, in advance, by NHQ/DOK.

**11.5.5. Participation Requirements.** CAP radio stations that are also designated SHARES stations must participate in at least one exercise or actual disaster in each calendar year. CAP-SHARES stations who do not meet this minimum requirement may lose their authorization to participate in SHARES.

**11.5.6. Time References.** When interoperating with other agencies, CAP may use either UTC or local time, as required to facilitate interagency communication.

**11.6. FEMA National Emergency Communications Network (NECN).** This net is designed to provide backup command and control communications to support the National Response Plan. It provides links directly to on-scene FEMA disaster response/control elements. All CAP stations are eligible to participate; however, CAP participation in exercises may be restricted. Stations participating in NECN exercises will be pre-coordinated for each exercise by NHQ/DOK with FEMA.

**11.7. CAP Participation in Government Agency Communications Programs.** CAP stations operating on frequencies assigned or licensed to another agency, including state-managed digital trunking systems, must have written authorization from that agency and a copy of the applicable FCC license or federal frequency assignment. This documentation must be coordinated with NHQ/DOK for approval. CAP use of other agencies' frequencies is strictly limited to liaison communications for inter-agency coordination. Such frequencies shall not be used to satisfy internal CAP-to-CAP communications requirements.

**11.8. Liaison Radios.** Liaison Radios are radios that are legal to be used in other radio services outside of CAP and are maintained in inventory for that purpose. A small number of these radios, as determined by operational requirements, may be used for communication with other departments and agencies. Such operations shall be used only on authorized frequencies to conduct official CAP business during joint operations, in accordance with approved planning per paragraph 11.5.

**11.9. CAP Support to Other Agencies.** Although the primary purpose of CAP communications is to provide internal communications capabilities, the CAP communications system may also be called upon to provide message relay support to “customer” agencies, where it does not conflict with CAP’s primary mission accomplishment. The following requirements apply:

11.9.1. IAW paragraph 5.6., agencies licensed by the Federal Communications Commission may not use frequencies assigned to CAP for their own internal communications without extensive advance coordination with both the NTIA and the FCC. CAP does not, itself, have the authority to authorize such operation. Interagency operation on CAP frequencies, based only on CAP’s authorization as contained in an MOU or other agreement approved by NHQ, may only be done where CAP is an active participant in interagency communications.

11.9.2. IAW paragraph 5.6.3., Department of Defense, Department of Homeland Security, or other authorized stations may appear on CAP frequencies and request support. The following is an example of a typical call from a DoD station, “Any CAP station, this is Rifle, over.” CAP stations should offer any assistance they can to these DoD stations, including relaying messages. CAP members hearing unfamiliar call signs or operation on CAP frequencies may report the incident to higher headquarters, but should not interfere with the other stations, which may represent other legitimate agencies that do not require advance local coordination to use CAP frequencies or repeaters.

11.9.3. See para. 6.2. for more information on spectrum management requirements and procedures.

**11.10. Programming and Use of Interoperability Frequencies.** A small number of interoperability channels are included in the National Programming Plan (NPP) (see paragraph 6.13.). In addition, wings are authorized to program additional identified interoperability channels into positions not already used in the NPP when the channels are authorized for CAP use in their area. Interoperability channels may not be used for internal CAP-to-CAP communications, except incidentally as part of a legitimate inter-agency environment. These channels may include:

11.10.1. **The Federal Interoperability Channels** listed in paragraph 4.3.16 of the NTIA Manual of Regulations and Procedures for Federal Frequency Management (Redbook). In addition, CAP may ask local or Federal Agencies to program and utilize the “Incident Response” channels listed in the referenced paragraph for interoperability communications with CAP. As a Federal entity, CAP is already authorized to transmit on these channels for interoperability purposes. These channels are for Interoperability use only, and may not be utilized for routine or administrative communications, nor may they be used for CAP internal communications.

11.10.2. **The Non-Federal VHF National Interoperability Channels** as identified in the National Interoperability Field Operations Guide (NIFOG; available at: <https://www.dhs.gov/sites/default/files/publications/National%20Interoperability%20Field%20Operations%20Guide%20v1.6.pdf>). Some of these channels are already contained in the NPP. Additional NIFOG channels from the list may be programmed if they are used in your area. Authorization to transmit on these channels is contingent on CAP receiving a request from an appropriate FCC-licensed agency. These channels are for interoperability use only and must not be used for routine or administrative communications, nor may they be used for CAP internal communications.

11.10.3. **Marine Channels** are included in the NPP for interoperability with the United States Coast Guard (USCG) and its Auxiliary. Authorization to transmit on these channels is only at the request of the USCG. Interoperability with other agencies licensed to use Marine channels required

advance authorization, IAW para. 11.9.3. Marine channels may not be used for CAP internal communications.

11.10.4. **Other channels** designated either locally or nationally as interoperability channels may be installed only upon written request from an appropriately-licensed (by the FCC) local agency or an authorized (by the NTIA) federal agency. CAP units are encouraged to determine appropriate local interoperability channels well in advance of any actual emergency and establish formal, mutually-signed MOUs, operations plans (OPLANS), Tactical Interoperable Communications Plans (TICP) or similar arrangements with the appropriate agencies. Authorization to transmit on these channels is only at the request of the responsible partner agency, and these channels may not be used for CAP internal communications.

11.10.5. Channels that are licensed or assigned to a specific agency, and not designated for interoperability use, may only be programmed in CAP radios upon written request from the licensed agency. Authorization to transmit on these channels is only upon request from the licensed agency and these channels may not be used for CAP internal communications.

11.10.6. Part 97 amateur radio frequencies may not be used for internal CAP communications, with rare exceptions as provided in paragraph 11.3., above.

**11.11. Memorandum of Understanding.** Agreements between Civil Air Patrol and another agency are usually documented by a Memorandum of Understanding (MOU), which must be approved by National Headquarters before implementation.

11.11.1. General guidance about MOUs is found in CAPR 111-2, Memorandum of Understanding.

11.11.2. Communications provisions of any MOU with another agency should include a agreement that the other agency may not use CAP frequencies or equipment for their internal communication, i.e. when CAP is not an active participant in inter-agency communication (see para. 11.6.). If the MOU proposes the release of CAP frequencies to another agency, it must include the actual name of the agency's responsible party. A standard letter provided by NHQ/DOK must accompany the release of frequencies, explaining the FOUO nature of the information.

JOSEPH R. VAZQUEZ  
Major General, CAP  
Commander



**Attachment 1  
COMPLIANCE ELEMENTS**

Checklist and Tab	#	Compliance Question	How to Verify Compliance	Discrepancy Write-up	How to Clear Discrepancy
CI C-2	01	<p>a) Has the wing published any supplements, operating instructions (OI) or waivers IAW CAP regulations? If "no" then answer "N/A". If "yes" got to next question.</p> <p>b) Were the supplements, OIs or waivers approved IAW CAPR 100-1 prior to implementation?</p>	<p>Wing will submit a copy of approval documentation along with approved supplement, operating instructions and waivers. Compliance is determined by comparing the wing's published supplements, OIs and waivers with NHQ/DO records.</p> <p>NOTE: If supplement is not marked or posted correctly, it is a D-4 Question 1. All other discrepancies are documented under this question.</p>	<p>(A-Discrepancy): [xx] (Question 1) Wing supplement, OIs or waivers to CAPR 100-1 were not approved by CAP/DO prior to implementation IAW CAPR 100-1 para 1.8.</p>	<p>Attach a copy of the approved supplement, OI or waiver to the discrepancy in the Discrepancy Tracking System (DTS).</p>
CI C-2	02	<p>a) Has the wing submitted an annual communications plan by the 10th of April?</p> <p>b) Did the wing use the template provided by NHQ/DOK?</p> <p>c) Has any feedback from DOKPP been incorporated and resubmitted?</p>	<p>a) &amp; b) Check with NHQ/DOKPP to confirm timely submission.</p> <p>NOTE: If NHQ/DOK did not provide a template for a given year, the wing plan should comply with the outline in CAPR 100-1 para. 2.3.3.</p> <p>c) Check with NHQ/DOKPP to confirm if feedback was provided and then incorporated in the annual communications plan and resubmitted to NHQ/DOKPP.</p>	<p>a) (A-Discrepancy): [xx] (Question 2) Wing did not submit annual communications plan IAW CAPR 100-1 para 2.2.</p> <p>b) (A-Discrepancy): [xx] (C2 Question 2) The wing did not use the template provided by NHQ/DOK IAW CAPR 100-1 para 2.3.3.</p> <p>c) (A-Discrepancy): [xx] (C2 Question 2) The wing did not incorporate feedback from NHQ/DOKPP and resubmit the plan IAW CAPR 100-1 para 2.5.</p>	<p>a) Attach a copy of the annual plan to the discrepancy in the DTS.</p> <p>b) Attach a copy of the revised annual plan to the discrepancy in the DTS.</p> <p>c) Attach a copy of the revised annual plan to the discrepancy in the DTS.</p>

Checklist and Tab	#	Compliance Question	How to Verify Compliance	Discrepancy Write-up	How to Clear Discrepancy
CI C-2	03	a) Does the wing conduct an annual radio communications effectiveness evaluation IAW CAPR 100-1?	a) Wing will submit documentation of the last annual communications effectiveness evaluation.	a) (A-Discrepancy): [xx] (Question 3) Wing did not complete an annual radio communications effectiveness evaluation IAW CAPR 100-1 para 3.3.2.	a) Conduct a radio communications effectiveness evaluation. Attach a copy of the documentation of the effectiveness evaluation to the discrepancy in the DTS.
		b) Was the exercise pre-coordinated and approved by the region DCS/Comm?	b) Wing will submit a copy of exercise pre-coordination email or memorandum and a copy of the approved region DCS/Comm email or memorandum.	b) (A-Discrepancy): [xx] (Question 3) Wing annual radio communications effectiveness evaluation was not pre-coordinated and approved by the region DCS/Comm IAW CAPR 100-1 para 3.3.2.	b) Attach a plan of action, approved by the Wing/CC, to prevent reoccurrence to the discrepancy to the DTS.
		c) Was an after action report submitted to CAP-USAF liaison region director of operations (LR/DO), region DCS/COMM, NHQ/DOKO, and NHQ/DOKPP within 30 days after the exercise?	c) Wing will submit a copy of memorandum or email of the after-action report submitted within 30 days.	c) (A-Discrepancy): [xx] (Question 3) Wing annual radio communication effectiveness evaluation after-action report was not submitted to CAP-USAF liaison region director of operations (LR/DO), region DCS/COMM, NHQ/DOKO, and NHQ/DOKPP within 30 days after the exercise IAW CAPR 100-1 para 3.3.2.	c) Attach a copy of the submitted after action report to the discrepancy to the DTS. Attach a plan of action, approved by the Wing/CC, to prevent reoccurrence to the discrepancy to the DTS.
CI C-2	04	(DELETED)	(DELETED)	(DELETED)	(DELETED)
CI C-2	05	(DELETED)	(DELETED)	(DELETED)	(DELETED)
CI C-2	06	Does the wing have at least one HF/ALE station in continuous service on the region ALE net?	Wing will provide wing plans and duty assignments for review to identify which station or stations are assigned responsibility.  NOTE: HF/ALE net inspected on-site during inspection, if available.	(A-Discrepancy): [xx] (Question 4) Wing did not maintain at least one HF/ALE station in continuous service IAW CAPR 100-1 para 7.4.2.1.	Attach a plan of action to prevent reoccurrence, approved by Wing/CC, to the discrepancy in the DTS.

Checklist and Tab	#	Compliance Question	How to Verify Compliance	Discrepancy Write-up	How to Clear Discrepancy
CI C-2	07	Does the wing routinely conduct at least one conventional HF voice net each week?	Wing will provide documentation of conducting HF voice nets at least once a week.  NOTE: The form of the documentation is not specified but should include items such as dates/times, channels used, net control station(s), and participants.	(A-Discrepancy): [xx] (Question 5) Wing did not conduct at least one conventional HF voice net each week IAW CAPR 100-1 para 7.4.2.1	Attach documentation showing weekly HF voice nets were completed to the discrepancy in the DTS.
CI C-2	08	(DELETED)	(DELETED)	(DELETED)	(DELETED)
CI C-2	09	Refer to CAPR 174-1.			
CI C-2	10	Is the wing represented multiple times a week on the National Traffic Network (NTN)?	Wing will provide documentation of checking-in to the NTN multiple times a week.  NOTE: The form of the documentation is not specified, but should include items such as dates, times, and station call sign.  NOTE: If necessary, CAP/DOKO may be contacted to verify participation.	(A-Discrepancy): [xx] (Question 6) Wing was not represented in the NTN multiple times a week IAW CAPR 100-1 para 7.4.1.2.	Attach documentation showing participation on the NTN was completed. Attach a plan of action to prevent reoccurrence, approved by the Wing/CC, to the discrepancy in the DTS.

**Note:** There are no SUI related questions for CAPR 100-1.

## **Attachment 2**

### **DEFINITION OF TERMS**

**A.2.1. Automatic Link Establishment (ALE).** An HF radio technology in which an HF radio operates automatically on an assigned suite of multiple channels in different bands. Each radio on the ALE net periodically transmits an identification, called “sounding”, and other radios perform Link Quality Analysis (LQA) in order to be able to identify the best channel to reach a given station at any given time.

**A.2.2. Broadcast Traffic.** A general information message for wide distribution. Stations should pass on broadcast messages, as addressed, but acknowledgements are not required for every receiving station, unless requested by the NCS or transmitting station. It is understood that in some cases, it may be impractical to deliver the traffic to all addresses. An example is a message with “INFO: All Members” in which case a reasonable effort should be made to forward the traffic widely, but delivery to 100% of all CAP members is understood to be impractical.

**A.2.3. CAP-DC Listserv.** This listserv is the primary Communications program management coordination channel among National Headquarters, the regions, and wings. DCs are subscribed to this listserv automatically when their duty position is recorded in eServices. Other communications staff members may be subscribed based on guidance from the CAP National Staff and CAP Headquarters Staff, as revised from time to time. In all cases, the address receiving e-mails is the address entered in eServices.

**A.2.4. CAPF 76, Radio Station Authorization.** A CAPF 76 may be issued to CAP personnel who meet the requirements listed in paragraph 5.2. of this regulation. CAPF 76 may only be issued by region or wing DCs (or their designees). This document is optional and is typically only issued in response to a specific need.

**A.2.5. Channel Loads/Code Plugs.** Computer files used to program specific models of radio with frequencies, tones and other operating parameters. Channel loads are the implementation of the National Channelization and Programming Plan for a specific model of radio. See paragraph 6.13.

**A.2.6. CommPermissions.** A formal process by which communications managers request certain permissions or support from National Headquarters, submitted via the [commpermissions@capnhq.gov](mailto:commpermissions@capnhq.gov) e-mail address. This address shall not be used as a catch-all address for contacting Headquarters Communications staff, but rather for only those functions specifically authorized. See paragraph 6.12.

**A.2.7. Communications Section of eServices.** This password-protected website, found via the menu at the bottom of the eServices page, is the repository for documents and applications used for management of the Communications program. Many elements are visible only to those in appropriate staff positions. For example, the Repeater Authorization and Review System (RARS) is used only by the Wing Director of Communications and higher staff and are not visible to other members of the wing. The Communications Library is the most frequently used part of this website, including a variety of documents and publications. Lists of NTIA compliant radio equipment are also available.

**A.2.8. Compliant Equipment.** Radio equipment that complies with the standards established by the National Telecommunications and Information Administration (NTIA), as determined by manufacturer specifications.

**A.2.9. Confidence Checks.** Each operational CAP radio is tested on a regularly-scheduled basis to test the hardware, antennas, and connectivity. Frequency of confidence checks is based on the CAP Alerting System Actions guide in the National Communications Plan, found in the Communications section of eServices. CAP Communications managers at each level may implement short-term elevation of the alert level for their own and subordinate units for specific missions, training, or other cause, usually in coordination with command and notification to higher headquarters.

**A.2.10. Defense Reutilization and Marketing Office (DRMO).** Military facilities to which all DoD funded equipment no longer needed by CAP must be returned. Procedures are contained in CAPR 174-1, *Property Management and Accountability*. Equipment not required by the wing but usable by other wings shall be returned to NHQ/NTC rather than turned in to DRMO. Note: Equipment obtained from DRMO by CAP carries a 100% of new cost liability, should the equipment be lost or damaged through negligence; there is no depreciation of these assets.

**A.2.11. Duplex Operation.** Duplex is operating on different transmit and receive frequencies. It is commonly used with repeaters.

**A.2.12. HF/ALE.** High Frequency Automatic Link Establishment. See Attachment 2, paragraph A.2.1.

**A.2.13. National Communications Staff.** The National Headquarters Communications staff is an integrated corporate and volunteer staff, reporting to the Chief of Communications (DOK) in the National Headquarters Operations Directorate. The Communications staff is divided into five divisions, Education and Training (DOKT), Engineering (DOKE), Operations (DOKO), Plans and Requirements (DOKP), and Science and Technology (DOKQ). A complete organizational chart is available in the Communications section of eServices. Communications managers at all levels are encouraged to be familiar with the organizational chart and communicate directly with the appropriate division or section.

**A.2.14. Message Center.** A station that is responsible for relaying formal traffic into and out of the wing or region. Each wing and region has an HF/ALE message center station in continuous duty, handing off the “duty station” responsibility among stations as needed, standing by to receive incoming traffic. Message Center stations on voice nets are responsible for checking in to national and region nets regularly (ideally daily) to seek out messages addressed to the wing/region. Voice and ALE message centers are often the same station, however separate stations may be assigned these duties.

**A.2.15. National Technology Center (NHQ/NTC).** A CAP facility that serves as the centralized communications maintenance depot and warehouse.

**A.2.16. National Telecommunications and Information Administration (NTIA).** The federal agency responsible for the regulation of frequency spectrum use by federal agencies. Only NTIA compliant radios may be purchased using CAP funds for use on federal frequencies.

**A.2.17. Net.** Nets are composed of stations selected based on the communications requirement. Some nets restrict open participation, while other nets are open to all CAP stations. Guidance on network architecture is found in paragraph 7.4. Guidance on net procedures is found in CAPR 100-3, *Radiotelephone Procedures*.

**A.2.17.1. Traditional Voice Nets.** Held at scheduled times on single frequencies for the purpose of passing traffic, training and confidence checks IAW paragraph A.2.9. Nets are supervised by an active Net Control Station using a hub-and-spoke network design.

**A.2.17.2. HF/ALE Nets.** Nets that operate 24-hours a day with automatically-operating radio and managed by a Net Control Station, but using a peer-to-peer network design in which stations connect to each other individually.

**A.2.18. ORMS.** The Operational Resource Management System, an online database used to track and manage all CAP property, including communications property, logistics property, real property, aircraft, and vehicles. The Office of Primary Responsibility (OPR) for ORMS is NHQ Logistics. See CAPR 174-1, *Property Management and Accountability*.

**A.2.19. Record Traffic** - Radio messages that begin and end as written messages (including files stored on computer) that provide a hard copy paper trail of the specific wording of the message(s) sent. Each station handling record traffic must acknowledge the message, whether it is the final destination or a relay station en-route. Each station must deliver the traffic to its destination, relay to another station, or return the traffic to the station from which it was received.

**A.2.20. Repeater.** A repeater is an interconnected receiver and transmitter system that automatically retransmits, on the output frequency, what is heard on the input frequency. Fixed repeaters and/or their associated antennas are placed in higher locations to extend the range of fixed and mobile stations. Tactical repeaters are used as airmobile repeaters or at temporary ground locations.

**A.2.21. Repeater Authorization and Review System (RARS).** RARS is the online database and system by which repeater authorizations are requested, approved by the National Repeater Coordination Group (NRCG), and preserved for recordkeeping. RARS is available to communications managers at the wing level and higher in the Communications section of eServices.

**A.2.22. Simplex Operation.** Simplex is operating on the same transmit and receive frequency.

**A.2.23. Spectrum Management.** A formal process by which spectrum (radio frequency) assets are managed, assigned, and documented within the federal government. CAP spectrum management (NHQ/DOKEF) is conducted under the oversight of the Air Education and Training Command spectrum management office, working with the Air Force Spectrum Management Office (AFSMO), which complies with guidance provided by the Military Communications and Electronics Board (MCEB) and the National Telecommunications and Information Administration (NTIA).

**A.2.24. Standard Frequency Action Format (SFAF).** This is the standard format for frequency authorization applications within the DoD. CAP requests for authorization to use frequencies are filed in this format with NHQ by the appropriate communications manager.



**A.2.25. Station.** A CAP radio station is any operational base, mobile, or portable radio controlled by CAP and authorized to operate on CAP frequencies. The station may or may not have a unique call sign assigned to the facility. The designation of a station, however, is not tied to specific hardware, i.e. radios may be exchanged or substituted without requiring changed authorization for the station.

A.2.25.1. **Base Station.** A ground station that operates from a stationary, fixed, or permanent location and uses antennas that are permanently mounted. Base stations include temporary installations at expedient fixed locations established to conduct specific missions.

A.2.25.2. **Mobile Station.** A mobile station normally operates in motion or during halts at unspecified locations. Mobile stations include ground vehicles, boats, aircraft, and other similar radio installations.

A.2.25.3. **Portable Stations.** Handheld radios operating with built-in antenna and battery power.

A.2.25.4. **Search and Rescue (SAR) Station.** SAR stations are fixed or mobile stations authorized to operate on specific aeronautical (VHF-AM) frequencies for search and rescue purposes. CAP currently has no blanket national authorization for ground use of SAR stations.

**A.2.26. Table of Allowances (TA).** The TA is a management document which lists communications “requirements” that have been validated and approved by CAP-USAF. This document is the basis for funding, acquisition, distribution, and assignment of Air Force-provided communications equipment.

**A.2.27. Validated Requirements** - The concept of validated requirements, as addressed in CAPR 100-1, Communications Management, is fundamental to the management strategy of the Communications Program. In the Communications program, “validated” refers to requirements that have been approved by policy. In some cases, these are external requirements, such as from 1st Air Force that CAP has accepted by policy as something that can and should be done. In other cases, they are developed internally, such as by feedback from Incident Commanders, and affirmed by command. Whenever funding or other use of CAP resources is implicit in fulfilling the requirement, CAP-USAF concurrence is required for validation.

**A.2.28. VHF-FM.** Very high frequency-frequency modulation.