R4M 3-200

ARMY MARS BASIC TRAINING COURSE

(INDIVIDUAL MEMBERS)

MARCH 2015

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DEPARTMENT OF THE ARMY
MILITARY AUXILIARY RADIO SYSTEM
REGION 4 ARMY MARS
FORT HUACHUCA ARIZONA 85613-7070

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FORWARD

This manual is designed as an interim supplement to the US Army MARS Basic Training Course. It is written and designed to provide a comprehensive general overview of Army MARS operational and training information for the new Army MARS member as well as provide a reference source for the general membership. The manual also provides evaluation sections whereby new members can complete the written portion of their initial training requirements. The Region 4 Army MARS Basic Training Course includes revisions and procedural changes implemented since the issuance of the Army MARS Basic Training Course Manual: AM 3-200, Version 2.2.

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IMPROVEMENTS

Suggested corrections, or changes to this document, should be submitted through your State Director to the Regional Director. Any Changes will be made by the National documentation team.

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VERSIONS

The Versions are designated in the footer of each page if no version number is designated the version is considered to be 1.0 or the original issue. Documents may have pages with different versions designated; if so verify the versions on the "Change Page" at the beginning of each document.

REFERENCES:

The following references apply to this manual:

1. DoDI 4650.02 – Military Auxiliary Radio System
2. AR 25-6 - Military Auxiliary Radio System (MARS)
3. Combined Communications Electronics Board, Allied Communication Publications:
   - ACP-121 - Communications Instructions - General
   - ACP-125 - Communications Instructions - Radio Telephone Procedures
   - ACP-126 - Communications Instructions - Teletypewriter (Teleprinter) Procedures
   - ACP-127 F and ACP-127 annex G
   - ACP-127 US SUPP-1(K)
   - ACP-131 - Communications Instructions - Operating Signals
   - ACP-167 – Glossary of Communications – Electronics Terms
4. FM 24-19 – Radio Operators Handbook
5. FM 6-02.53 - Tactical Radio Operations
6. AM 2-200 - Army MARS Net Plan
7. JM 2-203 Joint MARS Routing Indicators
8. AM 2-310 – Army MARS Reports
9. Stafford Act - 42 U.S.C. 5185, 42 U.S.C. 5170b
10. AM 1 This is ARMY MARS

1 GENERAL INFORMATION

1.1 WELCOME

The U.S. Army Military Auxiliary Radio System (ARMARS) is an elite group of dedicated citizen volunteers who support a Global High Frequency Enterprise Radio Network (GHFERN). The GHFERN provides contingency radio communications to the Department of Defense (DoD) in a variety of circumstances, including complex catastrophes and cyber denied or impaired conditions. MARS is the program that trains, organizes and tasks volunteer Amateur Radio operators to support the GHFERN.

Army MARS citizen-volunteers demonstrate the Army's values of Loyalty, Duty, Respect, Selfless-Service, Honor, Integrity and Personal Courage, freely and generously giving their time and resources as a reflection and measure of devotion to our nation. The world has changed dramatically since the MARS structure was first developed and implemented but what has not changed is the dedication of these citizens to serve.

1.2 HISTORY

The Army Amateur Radio System (AARS) was founded in 1925 by the U.S. Army Signal Corps, based on the need for a pool of trained radio operators in time of mobilization. This organization was the forerunner of today's Army MARS. AARS was deactivated on 7 December 1941 with the outbreak of World War II.

The Military Amateur Radio System was established on 26 November 1948 by authority of the Secretaries of the Army and Air Force. It was renamed Military Affiliate Radio System on 2 September 1952 to more accurately describe its nature. In 2009, MARS name changed again when it was upgraded to a Military Auxiliary. MARS is probably best publicly recognized for its Vietnam Era service to soldiers deployed throughout the world. However, the MARS program you are going to learn about is significantly evolved. The MARS program operates under Department of Defense (DoD) Instruction 4650.02 as of 23 December 2009.

1.3 MARS MISSION

The MARS Mission is to support a Global HF Enterprise in cyber impaired or denied environments on behalf of the Department of the Army, Department of Defense, in order to support the objectives of the United States.

The Global High Frequency Enterprise Radio Network (GHFERN) is designed to deliver messages primarily using High Frequency (HF) radio, although VHF radio may be utilized in some segments of the network. The GHFERN is operated by government personnel, contractors, military personnel and supported by a corps of citizen volunteers. The network supports Phone Patch/Radio Wire Integration (RWI) and point to point data and voice message circuits, compliant with the procedures outlined in the Allied Communications Publications.

Many MARS capabilities are provided through the utilization of organized volunteer amateur radio operators and their operating facilities under the appropriate Service authorities as directed by and coordinated within the Department of Defense and Service Channels.

The MARS mission consists of three primary tasks:

1) Provide radio communications support to the DoD by staffing the GHFREN. The GHFREN provides enterprise level HF radio connectivity across the Army in the event of a denial of cyberspace.

2) Support DoD Humanitarian Assistance and Disaster Relief (HADR) efforts by interfacing with Amateur Radio stations in disaster areas, or other Amateur Radio stations that are in contact with Amateur stations in the disaster area, to obtain information concerning the conditions, impact of the disaster, and other information pertinent to coordinating a US HADR response.

3) Provide temporary disaster communications support to State and Local Civil Authorities, when requested and authorized by the DoD, until those Civil Authorities are able to serve their citizens without additional military support.

MARS also supports the DoD in other areas secondary to the primary mission, which include:

1) Training cadets, soldiers and guardsman in HF radio fundamentals. As subject matter experts in HF radio techniques, MARS citizen-volunteers are uniquely qualified to provide this service, and contribute to improving the effectiveness of these military units.

2) Processing Moral, Welfare and Recreation (MWR) related messages and telephone calls to or from US servicemen and women located throughout the world. This activity was commonly referred to as “MARSGRAMS”.

The DoD Instruction document, (DoDI), specifies that MARS must be able to operate using radio only, without landlines or internet, and be sustainable on emergency power.

1.4 DEFINITIONS

1.4.1 Contingency radio communications support:

The provision of radio-based transfer or exchange of information to assist with DoD or civilian authorities’ operations during, or responses to, any major disruption of DoD or other communications networks, such as those associated with official national security or emergency preparedness events or activities.

1.4.2 Military auxiliary:

An organized body of volunteers prepared to supplement the uniformed services or any designated civilian authorities by provision of specialized autonomous services when called upon or when situations warrant.

1.4.3 Defense Support of Civil Authorities:

Support provided by US Federal military forces, DoD civilians, DoD contract personnel, DoD Component assets and National Guard forces when the Secretary of Defense, in coordination with the Governors of the affected States, authorizes use of those forces in response to requests for assistance from civil authorities or from qualifying entities for special events, domestic emergencies, and other domestic activities. (42 USC 5185 & 42 USC 5170b)

1.5 RELATIONSHIP WITH AMATEUR RADIO

Army MARS networks are military in nature. Although Individual Members are required to hold a current Amateur Radio license, this should not imply Army MARS seeks to organize Amateur Radio for defense purposes. Rather the integration of qualified civilian human resources and infrastructure into military networks, providing radio only contingency communications services for the Department of Defense, using relevant military procedures and technology, is required of Army MARS.

Civilian, volunteer Amateur Radio operators represent the nation's reservoir of electronic experts, and are an important part of Army MARS human resources and infrastructure. As an Individual Member in Army MARS, you will be required to take the initiative in expanding your existing foundation in electronics and radio communications through independent study in the areas of military procedures and military communications technology. Through this effort you will become a valuable resource to the Department of Defense, and your country.

1.6 BASIC TRAINING PROGRAM

The Army MARS Basic Training Course (BTC) focuses the initial training of new and returning members on the basic knowledge required to operate satisfactorily in the MARS radio system. The course combines self-study, teamwork, and practical exercises. Successful completion is required within the six-month new-member training period.

The intent of this course is to provide you some basic knowledge of what is necessary to form a foundation of a successful and rewarding MARS career. This course is not intended to teach you everything you will ever learn about Army MARS; rather this course will focus on fundamentals to develop skills and a foundation for additional information.

Substantial knowledge of radio systems, equipment and radio wave propagation is assumed to exist based on the student's amateur radio background. This subject material is not covered in this course.

The Army MARS Basic Training Course is designed to be done with the assistance of experienced MARS volunteers. It is for this reason you have been assigned a mentor to work with you. Teamwork is an important part of Army MARS and your state organization is the team tasked to help you in training. Your ability to work with that team will be a significant factor in your success in this course and in a rewarding Army MARS career. The State MARS Director, Training Officer and Mentors will help guide and monitor your progress, provide assistance and verify satisfactory completion of the course. Contact them if you encounter any difficulty understanding the information.

1.7 GRADUATION

Completion of the Basic Training Course will be based on answering the assessment questions at the end of each section, and achieving tasks detailed in Chapter 10.

The tasks are designed to demonstrate your ability to apply the material presented in this course, development of your operating skills, and to demonstrate your technical ability to achieve proper performance and operation of your MARS station.

The Assessment questions at the end of each section will be reviewed by your Training Officer and Mentors, as will the tasks you are required to perform. Your completion of this course is dependent on the quality of answers provided to those questions, as well as your task performance. While the assessment questions may be answered “open book”, you will be evaluated on your understanding and application of the basic concepts presented here.

When you have successfully completed this course, your Training Officer will recommend to your State Director that you should be elevated from “in training” status to a regular, individual member. Based on the recommendation of the training officer and your mentors, your State Director will determine when your training is complete.

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2 MEMBERSHIP

On completion of this section, you will be able to:

- List four different MARS membership types.
- Explain the requirements and term of an Individual membership.
- Explain participation requirements.
- List the required training courses.

2.1 MEMBERSHIP TYPES

There are four types of memberships within Army MARS:

2.1.1 Military Unit

Military MARS stations established under the auspices of a military command and/or activity, and are operated or maintained by designated military and/or civilian personnel, to include appropriately assigned volunteer MARS members.

2.1.2 Agency

Agency MARS stations established, operated, and maintained by civil authorities or by recognized nongovernmental organizations supporting civil authorities.

2.1.3 Club Station

MARS club stations established under the auspices of a military or civilian amateur radio club, and operated and maintained by volunteers. A MARS station license must be issued as an additional license to a club member serving as MARS station trustee.

2.1.4 Individual

Individual Members are Citizen Volunteers with expert knowledge and experience in the field of radio communications that have volunteered their time, skill and equipment with the Department of the Defense.

2.2 MEMBERSHIP PERIODS

An Individual MARS member may be a member of only one MARS service at any given time. (Army, Air Force, or Navy-Marine Corps).

Individual membership is granted for the period covered by the member's current FCC amateur radio license. You must renew your MARS license when renewing your Amateur Radio license.

2.3 MEMBERSHIP REQUIREMENTS

The requirements associated with Individual membership in the Army MARS program include:

2.3.1 Age and Citizenship

An Individual Member must be seventeen years of age or older. The signature of a parent or guardian is required for applicants 17 to 18 years of age.

Citizens of the United States or individuals who have been lawfully admitted to the United States for permanent residence under Title 8, United States Code, Chapter 12 (8 USC, Chapter 12).

Willing to operate in accordance with Army MARS regulations, MARS directives or instructions. Individuals who were previously terminated from any MARS program will not normally be permitted to rejoin MARS.

2.3.2 Amateur Radio License

Individual Members must hold or obtain at least a General Class Amateur Radio License. New members with a Technician class will have one year to upgrade to General Class.

2.3.3 Training and FEMA Courses

This basic training course must be completed in six months' time. This requirement can be adjusted by your State MARS director for extraordinary circumstances.– In addition to this course, you should expect ongoing training. Army MARS is a dynamic organization and training adjust to current conditions.

You will have to complete two FEMA Independent Study Courses, 100x and 200x. The course is found on the internet at this address:

http://www.training.fema.gov/IS/NIMS.asp

New members will have one year from their acceptance into membership to complete the FEMA course. Current versions of the mandatory course is:

- IS-100 An Introduction to the Incident Command System.
- IS-200 ICS for Single Resources and Initial Action Incidents

2.3.4 Internet Access

Members must have Internet access.

2.3.5 Equipment

You must have, or have access to, a working radio station that is capable of operating on MARS frequencies through the 2-30 MHz range in voice and an authorized data mode. A broad band or tunable antenna system that can be used through the 2-30 MHz frequency range effectively is required. It is important the radio equipment works well. You will have difficulty completing this course and achieve little satisfaction from your MARS activities until you have mastered what may be new technical concepts related to operating away from harmonically related bands.

2.3.6 Participation Requirement

For individual members a minimum of 15 hours participation in MARS activities in each calendar quarter (three consecutive months) within your region is required to retain your MARS license. Nine of those hours must be on- the-air participation in your State or Region. You are encouraged to serve as a NCS (Net Control Station) as often as possible.

There is no minimum participation requirement for club stations, individual military members or military unit stations.

Any request for waiver of the participation requirement must be made to your State MARS director.

2.3.7 Station Logs.

Individual member stations shall retain logbook records of all operations for one calendar year after the date of the last entry. Logbooks will include the call signs of other stations operating in nets while the member was Net Control Station (NCS). The logbook may be written or electronically recorded. If electronic, suitable back up is necessary and should be on a removable device (thumb drive, external disc, cd, etc.) Retain back up records for minimum of 3 years.

2.3.8 Exercises or Actual Incidents

In addition to the above requirements, individual Army MARS members are required to participate in two state/regional/national training exercises per year to maintain proficiency and readiness.

Exercises meeting this requirement are defined as training activities conducted with duration of at least 3 hours for the purposes of exercising state/regional emergency operations plans and determining level of emergency readiness. Participation in an Actual Incident with duration of at least three hours requiring the activation of an emergency net also qualifies. An After Action Report describing your participation must be submitted in accordance with AM 2-310 chapter 5.

2.3.9 Reporting Requirements

Each Individual member is required to submit a monthly Participation Report reflecting their on-air and off-air MARS activity through the last day of the month. A report is required even if a member or station had no activity for that month. Members temporarily unable to participate for an extended period may request a leave of absence from their State MARS Director. Monthly participation reporting is not required during a leave of absence.

Participation Reports are due by the 10th day of each month. The report is explained in greater detail in AM 2-310 Army MARS Reports. The exact content of the participation is determined by the Region Director and communicated to all members by the State Mars Director or designated state staff.

2.3.10 Calculating Participation Credit

Participation credit is reported in half-hour increments for both on-the-air and off-the-air activities. Activity between one and 40 minutes equals one half-hour credit; 41 to 60 minutes of activity equals one full hour for credit.

2.4 ASSESSMENT

Answer these questions and submit your answers to your Training Officer or mentor.

1. Of the different MARS membership types, what membership type are you?
2. How many hours of participation are required each quarter?
3. How many of these hours must be on the air?
4. How many times are you required to be net control station each quarter?
5. By what day are participation reports due each month?
6. What is the web address for the required FEMA course?
7. A Pactor III modem is required for individual MARS members. TRUE/FALSE
8. FEMA courses IS-100 and IS-200 are required. Completion of which other course is required?

3 ORGANIZATION AND ADMINISTRATION

On completion of this section you will be able to:

- Explain the command structure used in Army MARS.
- Identify the call-signs of the directors and staff of each command level.
- Trace your chain of command back to 9th SC(A).
- Properly address membership issues to the appropriate person using the chain of command.

3.1 COMMAND AUTHORITY.

NETCOM/ 9th Signal Command (Army) is designated executive agency for Army MARS and has Headquarters at Ft Huachuca, AZ.

The 9th SC(A) is the Army's Information Technology provider, furnishing global communications support to American ground forces. In a domestic emergency 9th SC(A) supplies resources to ARNORTH (U.S. Army North), when tasked by FORSCOM (US Forces Command).

The Commander, 9thSC(A), in carrying out the MARS responsibility assigned to 9thSC(A), appoints a Chief, Army MARS (CAM) who is vested with the authority to carry out Department of the Army (DA) responsibility in accordance with DoD Instruction 4650.2.

3.2 ORGANIZATIONAL STRUCTURE

MARS is organized as a worldwide auxiliary military communications system. Its composition parallels the military organizational structure and command channels in concept and operation. The chain of command for Army MARS management flows through three levels.

- Chief, Army MARS
- Regional Directors
- State Directors (or OCONUS equivalents)

Each level has a director, a deputy, and a staff. Staff members assist in the overall management of day-to-day operations or special projects in that director's area of responsibility. The staff is assigned special call-signs, called "billets" to identify them as having a certain responsibility at the HQ, Region or State level.

3.1.1 HQ Army MARS Organization

The Chief, Army MARS has the overall responsibility for MARS policy and procedures, defining major customer support, and coordinating joint service issues. NETCOM / 9th SC(A) employs professional staff to administer Army MARS HQ. The call-signs for the principal positions at HQ Army MARS are:

- Chief Army MARS **AAA9A**
- Director of Operations **AAA93**
- Administration **AAA92DP**

In addition, there's the Chief's Special Staff ("special" to distinguish staff members as volunteers). They coordinate particular activities throughout Army MARS, such as phone patching operations and training.

In most cases the call sign prefix **AAA** is reserved for directors and staff, a number is used to designate staff function and follows United States Army conventions. .

Figure 3-1 is an organizational chart of HQ full time staff and special staff.

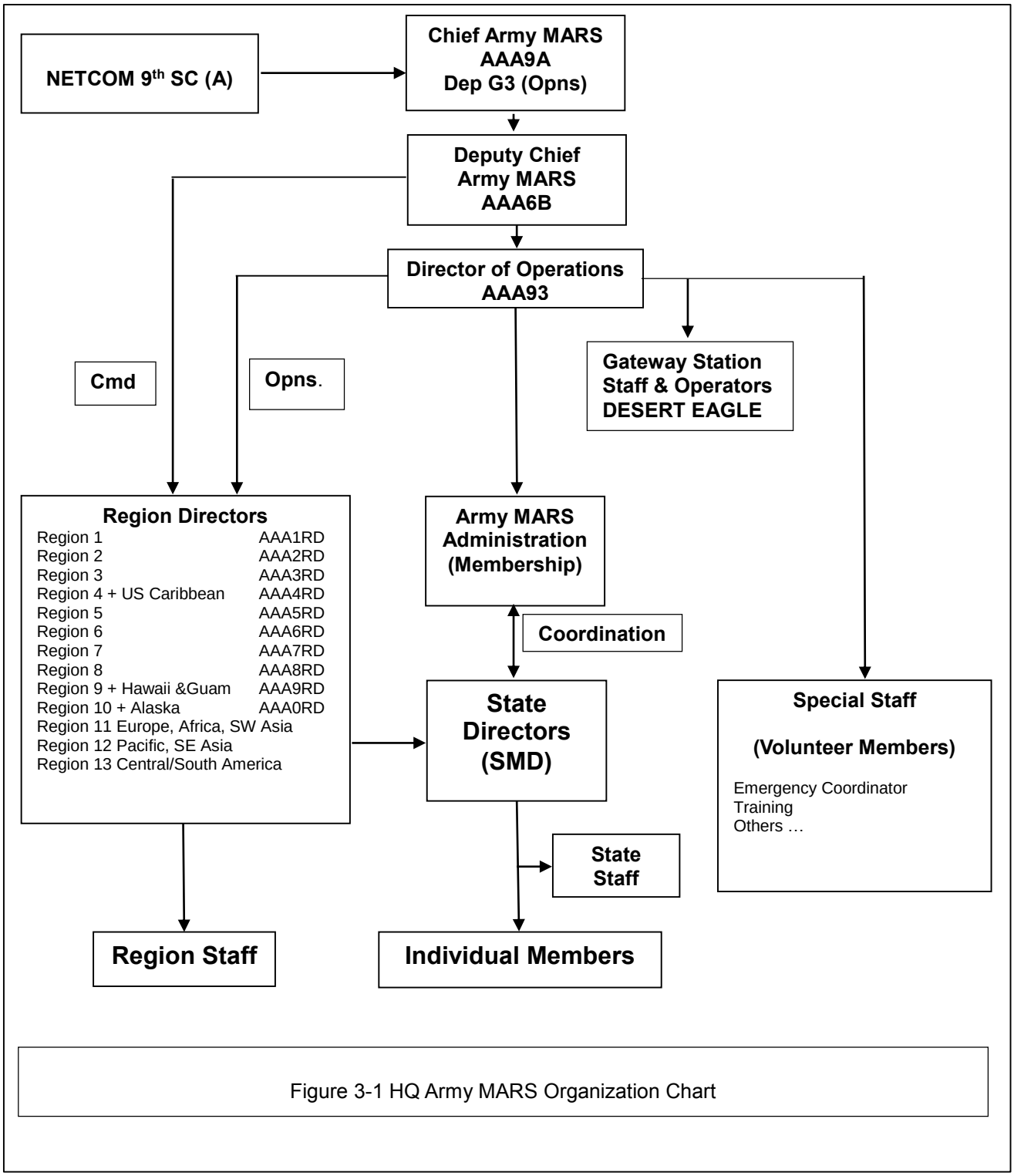

Figure 3-1 HQ Army MARS Organization Chart

3.1.2 Region Organization

Region Directors (RD) are volunteers selected by Army MARS HQ on the basis of experience and demonstrated capability. Region Directors within CONUS oversee operations activity in an area coinciding with one of the 10 FEMA regions.

The Region Director has a special billet call-sign which begins with **AAA**, followed by the region number, and ending with **RD**. For example, the region 4 director is **AAA4RD**.

The call-signs for the principal Region positions follow. There are other positions in some region organizations. In all cases, the number in the call sign coincides with the region number.

- Regional Director **AAA4RD**
- Assistant Regional Director **AAA4RX**
- Emergency Operations Officer **AAA4R3**
- Training Officer **AAA4R7**

The three overseas regions are organized under direct leadership of Region Directors with the same function as their CONUS counterparts. The call signs for overseas regions are formatted differently in each area of operation.

- Region 11: Europe Africa and Southwest Asia. (USEUCOM, USAFRICOM and USCENTCOM)
- Region 12: Japan Korea Philippines and other areas of the Pacific and Southeast Asia. (USPACOM)
- Region 13: Central and South America locations, including nearby Islands. (USSOUTHCOM)

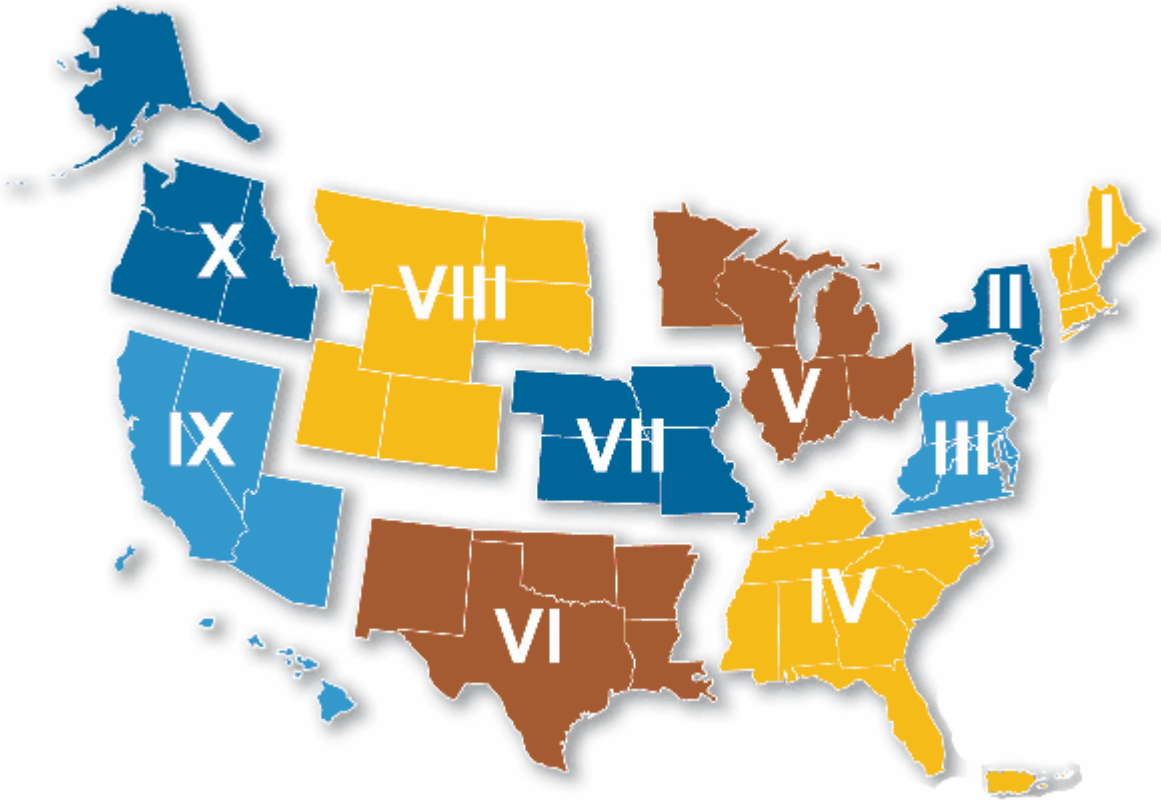

Figure 2-2 MARS Regions MAP

3.1.3 State Organizations

State MARS directors (SMD) report directly to the Region Directors (RD). State Directors are responsible for providing support service within their state and report to the RD. They recruit new members. They oversee member compliance with SOPs, training and participation requirements. They conduct exercises and organize Emergency Response Teams. A co-equal SMD responsibility is liaison with the state's Emergency Management Agency and National Guard command. SMDs are assisted by a staff similar to the RD's. Coordinating net times/frequencies, appointing net controls, organizing training cycles and planning exercises are tasks shared by RDs and SMDs on the basis of regional, state and local circumstances.

The State Director has a special billet call-sign which begins with **AAA**, followed by the region number, and ending with the two digit abbreviation of the state. For example, the State MARS director for North Carolina is **AAA4NC.**

The Assistant State MARS Director (ASMD) is an important part of state organizations. The ASMD can act on the SMD's behalf in all matters. Should the SMD become unavailable for any reason, the ASMD can assume command. The ASMD functions as a military Executive Officer, therefore the X designator is in their call sign.

The call-signs for the principal State positions follow. There are other staff positions in some state organizations. In all cases, the number in the call sign coincides with the region number.

- State MARS Director **AAA4FL**
- Assistant State MARS Director **AAA4ALX**
- Operations Officer **AAA4TN3**
- Training Officer **AAA4NC7**
- Admin Officer **AAA4SC1**

Some OCONUS countries or operating areas may have an equivalent staff member to SMD assigned. The titles and billet call sign prefixes for these staff members vary from the CONUS standard structure. For example, the equivalent staff member performing the duties of SMD in Germany is the "Assistant Affiliate MARS Coordinator" with the billet call sign "**AAA111**".

3.2 CHAIN OF COMMAND

Most members deal directly with their state level command and staff personnel such as their State MARS Director, Assistant State Director, Training, Emergency Operations Officers, and the State Administrative Officer. Army MARS follows a chain of command structure similar to any other military organization. This structure provides efficient command, control, and processing of the actions needed to keep the organization functioning and prepared to meet routine and emergency operations communications support requirements. As with any military style chain of command structure you should approach your state level officers first with questions or issues to be resolved.

3.3 ASSESSMENT

Answer these questions and submit your answers to your Training Officer or mentor.

1. To which military Command level organization is Army MARS subordinate?

2. What position in the Army MARS organization do you directly report to?

3. The letters of all Region Directors call signs are the same. What is the significance of the number in the call sign?

4. What is the call-sign for the Idaho State MARS Director?

5. The person with the call sign AAA8ND3 has what job?

By now, you should know (at a minimum) your State MARS Director, the Assistant State MARS Director, the Training Officer, and have been assigned a mentor. You should have the telephone number and email address for each of these people. Make an effort to contact your mentor and work together on this course. Remember strength is built on teamwork, not solitary activity. Your Mentor and you are a team.

On completion of each assessment, you should submit your answers to your mentor or training officer for review. Passing score is 100%, and you may use any resource available to you. Your mentor's job is to ensure your understanding of the material, and any wrong answer will be returned to you to make correct.

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4 PROFESSIONAL STANDARDS

On Completion of this section you will be able to:

- Explain the foundations of establishing professional and organizational credibility.
- Explain expected conduct and provide examples of behaviors that are not tolerated.
- Apply techniques for improving your professional image.
- Describe Controlled Unclassified Information (CUI) and what safeguards must be taken with documentation marked with designations such as FOUO.
- Identify Sensitive Personally Identifiable Information (PII) and distinguish it from common and publicly available PII.
- Identify appropriate methods for handling sensitive information.
- Describe situations and circumstances that MARS operators should be aware of concerning Operations Security (OPSEC) considerations.

4.1 INDIVIDUAL AND PROFESSIONAL CREDIBILITY

Army MARS members are expected to represent themselves and the Army MARS program with the highest degree of professionalism. Personal appearance, dress, language and manner of speech are important factors in making a good first impression. Credibility is established through a thoughtful, informed, deliberate and concise approach to problem solving with genuine attention to detail as well as the consideration of higher priorities.

- *Thoughtful* Actions are appropriate for the problem at hand in respect to overarching priorities.
- *Informed* Understanding the scope of the problem and the various solutions that can be applied.
- *Deliberate* Reliably and consistently takes action for the reasons so tasked to take action.
- *Concise* Take action and solve problems efficiently.

A thoughtful, informed, deliberate and concise approach to problem solving means in part, as individuals we know our place in the larger organizational picture. We know what we are empowered to do and what things are outside the scope of our authority. Adherence to a well regulated and disciplined organizational structure is required to establish trust with our clients and partners, that we respect boundaries, will treat our clients and partners with the standard of care necessary for a healthy working relationship.

4.1.1 Conduct

Army MARS members will conduct themselves with the highest degree of professionalism, discretion and courtesy at all times. Unprofessional behavior, insubordination, complaining or criticism of leadership and/or policy in a public venue will not be tolerated and will bring at a minimum counseling from your State or Region leaders. A pattern of this behavior will bring suspension and termination.

On the Air activities are considered a public venue.

Individual MARS members voluntarily choose to participate in MARS and are free to resign at any time. Individuals joining Army MARS, or remaining in Army MARS should understand their enrollment subjects them to the policies of HQ Army MARS. Individual membership is not a right or entitlement. Individuals in un-reconcilable conflict with policy, or unable to conduct themselves appropriately are encouraged to resign.

An individual's membership may be terminated. AR-25-6, sections 3-3 and 3-4 provides examples of some activities that may result in suspension or termination.

4.1.2 Organizational Credibility

Organizational relationships are based on expectations. Three basic expectations are Competency, Accountability, and Integrity.

- *Competency* The organization and its people are up to the task. Training and assessments have been done to the relevant standards. Proper equipment is on hand. There is enough experience to overcome obstacles and achieve the stated objectives.
- *Accountability* The organization and its people do what is expected in an efficient and effective manner. Sufficient controls are in place to ensure tasks are accomplished and personnel acts inside of established guidelines. Policies are in place and enforced effectively.
- *Integrity* Information Assurance is a part of Integrity. Non-Disclosure of sensitive information which is revealed in the context of the relationship is not only assured, but is one of the ethical foundations of the organization. Care is taken to protect information to the strictest standard.

4.1.3 Professional Image

Army MARS consists of Military Units, Government Agencies, and Volunteer elements. All three parts are functionally important and all three are professionals in their field. There are inherent gaps between the experience and expectations of the military and government agencies, when compared with the volunteer corps. These guidelines are a start towards improving the professional image of the Army MARS volunteer.

- *Dissociate Amateur Radio from Army MARS Activities.* Army MARS is different from ARES, RACES or any Amateur Radio E-COM group. Amateur Radio provides a valuable service in education and emergency communications to communities. Amateur Radio expands the nation's reservoir of trained operators, technicians and electronics experts, and is a prerequisite for Individual MARS Membership. The Department of Defense taps this reservoir for volunteer personnel. Your role will be as a relay in a military network, or as part of a government agency which you have become independently affiliated in an official capacity. You are not functioning as an Amateur Radio operator. Army MARS provides an opportunity for those to further expand their skills and knowledge in the fields of government and military communications technologies and techniques to work in support of the military network, or a government agency where such an affiliation exists.

  You should feel free to practice your Amateur Radio hobby, but there must be a separation. When on MARS business, do not think of yourself as an amateur radio operator. You are requested to not wear amateur radio paraphernalia, or otherwise identify yourself as an amateur radio operator while performing MARS communications or activities.

- *Improve your On-Line image*. An individual's internet activity is as important part of your professional image as wearing appropriate clothing for a job interview. There are basic things you can do to improve your on-line image.
    - Use a professional appearing email address. This is not the place for your amateur or MARS call sign (see PII and OPSEC sections below). Avoid using "cute" email addresses, such as *lazybear@cornydomain.com*, for your public identity. If you have AKO or other military / government email you should use it for your MARS business. If you use a commercial email, your name separated by periods such as first.middle.last@domain.com will give your email address a professional appearance.
    - Do not represent Army MARS on any webpage you own, or posts you make on other websites. Unless specifically authorized and tasked, you are not to make any public statements on behalf of Army MARS. This sort of advertising is unnecessary and unauthorized. This includes creating websites, chat forums, blogs, journalistic articles, etc.
    - The internet is forever. Things that happen on the internet stay on the internet. They become part of a public, searchable archive. The things you say today you cannot retract tomorrow. Be very careful with online discussion groups in particular – or do not participate at all. Posts to these discussions groups are usually more permanent than the circumstances for which they were written.

- *On the Air Image* While participating in "on the air" activities, stay relevant, keep your transmission short and to the point. It is important to keep a professional, military image. It is not appropriate to provide any personal information, including your name, location or equipment complement to other stations. Do not do this even if other stations prompt you. Discussion should be limited to MARS related topics if there is any discussion at all. As much as possible, keep the frequency clear for other stations and limit your transmissions to what is necessary to establish communications and pass message traffic.

- *Expand your Knowledge Base* Read materials and if possible attend conferences relating to government and military communications. Study field manuals, appropriate standardization agreements, military standards and keep up with websites such as HFIA (hfindustry.com). Become familiar with government and military communications systems and technologies such as ALE, and encryption. Take courses ICS-300, COML and COMT if available to you. Do not limit your knowledge base to communications. Lean as much as you can about the organization, operations and policies of the agencies you work with. Listen to those with experience and ask intelligent questions.

- *Learn and Practice OPSEC* Most regular citizens enjoy life in a free and open society, which is relatively free of the effects of crime and espionage. As a regular citizen, you are entitled to an opinion, to express yourself freely and practice and expect transparency. Military and government operations are a very different environment; a high level of Operations Security (OPSEC) is required. Highly developed rules for Information Assurance (IA) govern the release and public exposure of information which can be harmful not only to the continued operation of networks, but the people who are the subject of the communications. As an Army MARS member, you have freely volunteered for a role where you are expected to adhere to these higher standards.

4.2 CLASSIFICATION AND RELEASE OF DOCUMENTS

Army MARS members may be exposed to a variety of documents and information that is sensitive in nature. This may include internal documents, such as the Net Plan or an Operations Plan, or specific material from a government or military partner. Some of this information will be so marked as sensitive and some will not. Regardless of whether the information is marked as sensitive; Army MARS personnel will maintain the highest degree of confidentiality possible with all information they are entrusted.

Exercise a high degree of caution with the internet. Army MARS related information is not to be posted to the internet, or discussed in public forums. Exercise caution with “members only” areas of websites or groups. The lack of personal authentication allows impersonators to infiltrate these web groups. Membership in web groups is not subject to a security audit, allowing persons terminated from MARS programs continued access. The content of so called “Password Protected” websites is often revealed by web search engines. The security of Region and State MARS web pages is not to be relied upon. Army MARS materials are only to be published on approved DoD website, as approved by HQ Army MARS.

4.2.1 For Official Use Only (U/FOUO)

The term used to identify unclassified information of a sensitive nature, not otherwise categorized by statute or regulation, the unauthorized disclosure of which could adversely impact a person's privacy or welfare, the conduct of Federal programs, or other programs or operations essential to the national interest is For Official Use Only (FOUO). Other Controlled Unclassified Information (CUI) materials including those identified as Sensitive but Unclassified (SBU), Law Enforcement Sensitive (LES), Security Sensitive Information (SSI), Critical Infrastructure Information (CII) and Protect as Restricted Data (PARD) will be treated at a minimum to the same standard listed below:

- Access to information is based on "need-to-know" as determined by the holder of the information.
- The holder of the information will comply with any access and dissemination restrictions. Dissemination by the holder is restricted to only those persons and organizations so specifically authorized to that holder.
- A security clearance is not required for access to FOUO information.

When unattended, FOUO materials will, at a minimum, be stored in a locked file cabinet, locked desk drawer, or a locked overhead storage compartment. Materials can also be stored in a room or area that has sufficient physical access control measures to afford adequate protection and prevent unauthorized access by members of the public, visitors, or other persons without a need-to-know, such as a locked room, or an area where access is controlled by a guard, cipher lock, or card reader.

MARS frequency lists, the OPLAN and the Army MARS NETPLAN are considered "For Official Use Only" (FOUO). This information must be safeguarded accordingly and will not be distributed outside the Army MARS membership. FOUO material will be destroyed when no longer needed. Destruction may be accomplished by:

- "Hard Copy" materials will be destroyed by shredding, burning, pulping, pulverizing, such as to assure destruction beyond recognition and reconstruction. After destruction, materials may be disposed of with normal waste.
- Electronic storage media shall be sanitized appropriately by overwriting, degaussing or physical destruction.

4.2.2 Personally Identifiable Information (PII)

Personally Identifiable Information is any information that can be used to distinguish or trace an individual's identity. Sensitive PII includes items such as social security number, date and place of birth, mother's maiden name, or biometric records and any other information that is linked or linkable to an individual such as medical, educational, financial and employment information. Sensitive PII is never transmitted on an unencrypted circuit.

87% of the population of the United States could be uniquely identified by using only their gender, ZIP code and full date of birth. Breaches involving PII are hazardous to both individuals and organizations. Individual harms may include identity theft, embarrassment or blackmail. Organizational harms may include a loss of public trust, legal liability or remediation costs. Breaches of PII may cause individuals or their families to become the targets of hostile activity, such as intelligence collection, intimidation, harassment, kidnapping or criminal schemes.

Not all PII is always sensitive. For example, information on a business card or in a public phone directory is PII, but in most environments it is not Sensitive PII. The sensitive nature of PII is often highly dependent on the combinations of informational elements, individuals involved, and circumstances of the situation. For instance, persons in some professions take extra steps to become unlisted in public directories, and use "safe" addresses and phone numbers on business cards. Communications center personnel generally do not know the contributing factors establishing sensitive PII; therefore, they are instructed to guard all PII against disclosure.

An individual MARS members Amateur Radio call sign is PII since it is searchable in public databases and reveals significant personal information about the individual, including elements sufficient to perpetrate an identity theft, such as name, address, and date of birth. The association of a MARS call sign with an Amateur Radio call sign either in signature lines, web sites or publications is an uncontrolled and unauthorized release of location and personnel assigned to a military radio station. It is for this reason call signs should not be used as email addresses.

Additional information about the protection of PII is available at:
http://www.dhs.gov/xlibrary/assets/privacy/privacy_guide_spii_handbook.pdf

4.2.3 Tactics, Techniques and Procedures (TT&P)

Tactics, techniques and procedures describe operational methodology. While much of this type of material is freely accessible in the public domain, exactly what represents current TT&P details is vague given the volume of sometimes conflicting information from different periods of time. Care should be taken not to confirm current TT&P details to prevent spoofing, imitation, and counter operational strategies. Many internal MARS documents detail TT&P for operation on military networks. Some documents, such as the Net Plan are marked FOUO and their handling is regulated. Other documents, such as this training course do not carry special markings, but should be treated as potentially sensitive material. You may be exposed to TT&P from various government or military organizations in your MARS career. In all cases, handle TT&P information with care.

4.2.4 Distribution and Dissemination of Sensitive Materials

Unauthorized dissemination of sensitive materials is prohibited, and in some cases illegal. Army MARS individuals may be the recipient of sensitive materials, but will rarely be distributing sensitive materials unless specifically tasked by a competent authority. Do not distribute materials you are not specifically tasked to distribute. Distribute materials only inside your chain of command or unit, as you are authorized, to persons with a genuine need to know. Do not provide any Army MARS materials to other MARS service branch members. NMC and AF MARS members requesting Army MARS documents and materials shall request through their chain of command through HQ Army MARS.

4.3 OPERATIONS SECURITY (OPSEC)

We must always assume that our communications are being monitored, including radio network, telephone, faxes, e-mail and information posted to web sites. Information about military unit strengths, operational capabilities, personal information, deployment intentions, threat condition (THREATCON) levels at military/federal installations, personally identifiable information (PII), tactics, techniques and procedures (TT&P), or other data related to current operations could provide exploitable information to potential enemies. Practice continuous OPSEC as follows:

- MARS member communications and traffic relayed should neither confirm, deny, nor otherwise include information regarding past, present or future military unit deployments and military operations. Avoid casual conversations regarding military operations.

- Do not speculate about any military course of action. Seemingly harmless information, if combined with other supposedly innocent information, can divulge critical data that could endanger lives and impact mission success.

- Do not contribute to or confirm information in the public domain. Intelligence collection is an ongoing process. Information must be collected and its reliability confirmed to be actionable. Do not be an unwitting participant in this activity by acting carelessly on the internet or in discussions with hobbyists. It is common for some hobbyists to publish recent military communications intercepts on various internet sites. Army MARS members are not to participate in this activity, or assist those who do. MARS members are to exercise care when participating in internet forums and groups, including those reported to be limited to MARS members only.

- Minimize the exposure of TT&P. Operational information, including procedures, training, and frequencies are not to be exposed unnecessarily, or released to persons who do not have *a need to know* this information. When it is necessary to expose information, such as stating a frequency in the clear, do so to the minimum extent possible and only as necessary.

To ensure discussions on MARS nets and information contained within MARS messages do not violate OPSEC some simple and common sense rules apply:

- Do not transmit unnecessary information. Do not divulge your location, address, personal identity, station configuration or other information not relevant to legitimate communications without reason. Do not transmit unnecessary information about others. Be constantly aware your communications may be monitored by individuals or organizations unfriendly to the United States who are actively collecting to assess the readiness, moral, military discipline and capabilities of US forces, including Auxiliaries.

- Do not publicly disclose or advertise your or any other station's Army MARS call sign, such as on email addresses, internet groups, publications or on signature lines. Do not list your Army MARS call sign in conjunction with an Amateur Radio call sign. Doing this exposes Personally Identifiable Information (PII) that can be used to target individuals for intelligence collection.

- Do not request unnecessary information from another station, to include location, name or station equipment. Do not develop the habit of asking for location to establish a beam heading.

- Be alert for possible unauthorized transmissions and questionable station call signs; report these incidents through your state chain of command.

- During routine network operations do not transmit MARS operational frequencies in the clear over the air. Use authorized frequency designators. Never transmit frequencies and their designators together over the air. Do not refer to the frequency you are currently using by designator. If frequencies or designators are requested from unknown sources, do not provide the information.

- Army regulations and good OPSEC procedures prohibit military stations from confirming their transmissions on military frequencies. The only exception to this policy is the annual Armed Forces Day amateur to military cross-band tests when QSL cards are made available to amateurs and short wave listeners.

- Be aware of who are you within earshot of when having conversations about sensitive matters in public places.

- Bottom line – Make those who are collecting information work for it. Do not assist them. Whatever information may be already "out there", do not assist the intelligence collection process by having it come from you, or that it was confirmed and made actionable by you.

  Additional Information about Security can be found in ACP-125(f) Chapter 2.

To insure that the security of Essential Elements of Friendly Information are not disclosed during operations on insecure networks the BEADWINDOW procedure will be used.

- **BEADWINDOW PROCEDURE** – BEADWINDOW is a simple, rapid procedure for use by circuit operators to police the security of insecure voice networks. It brings to immediate attention of operators the fact that an Essential Element of Friendly Information (EEFI) has been or is about to be disclosed on the circuit. Additionally, the BEADWINDOW report serves to alert other operators on the net of the EEFI disclosure and thus acts as an educational aid, producing increased security awareness among operators and an overall improvement in the security of insecure voice communications.

- Use of **BEADWINDOW** in operations and exercises is mandatory.

- The **BEADWINDOW** procedure uses a code word (BEADWINDOW) and a number combination which is transmitted immediately to the station disclosing an EEFI. When a station on the net transmits information listed in an EEFI, the net control operator (**or any operator on the net in the event the net control operator fails to take action, or if net control is in violation**), transmits the code word BEADWINDOW, followed by the number of the EEFI which has been disclosed.

  Example: If an operator discloses EEFI related to ARMY MARS communications, the net control operator will call the offending station and transmit:

  BEADWINDOW SIX – OVER

  The only authorized reply to a BEADWINDOW report is ROGER – OUT. If the number of the EEFI is not immediately known, the code word BEADWINDOW will be transmitted by itself to alert stations and possibly prevent further disclosure of EEFI information.

Additional Information about BEADWINDOW Procedure can be found in ACP-125(f) para. 803.

4.4 ASSESSMENT

Answer these questions and submit your answers to your Training Officer or mentor.

1. The Army MARS Net Plan is marked For Official Use Only. What procedures should be taken to store this document?
2. You are provided a new OPLAN which replaces the old one. Both documents are marked FOUO. How do you dispose of the old document?
3. What would you do with a request for a QSL card from a short wave listener who has monitored your station in a regular MARS net?
4. You are in communications with a military aircraft and would like to adjust your beam heading to improve the circuit. Is it appropriate to ask that station for its' location?
5. Associating an Amateur Radio call sign with a MARS call sign in signature lines, internet groups or publications exposes the holder of the Amateur Radio call sign to what hazards?
6. List at least three elements of PII that are always sensitive.
7. List 4 ways to improve your professional image
8. List 6 concepts that establish organization and personal credibility.
9. List 4 behaviors that are not tolerated.
10. Who may initiate a BEADWINDOW notice on an Army MARS net?
11.

By now you should know your State and Region frequencies, and net schedule. You should have a copy of your state or region operations plan. Contact your SMD if you do not have these items.

5 TECHNICAL STANDARDS

On Completion of this section you will be able to:

1. Explain which federal agency governs federal and military communications.
2. Explain criteria for selecting appropriate radio equipment for MARS service.
3. Differentiate between an assigned center frequency, and the “dial” or “window” frequency.
4. Demonstrate correct tuning of SSB and digital signals.
5. Explain the nature of military frequency assignments and associated bandwidth in the HF and VHF spectrum.
6. Set maximum power limits for HF and VHF frequencies for various station types.

Army MARS is authorized to use assigned discrete military frequencies in the HF and VHF bands.

5.1 CONFORMANCE WITH RULES

It is HQ Army MARS policy that compliance with relevant Federal and Military regulations, directives, and standards is required of all Army MARS stations and licensees while operating in MARS service.

The National Telecommunications and Information Administration (NTIA) is the governing authority over federal radio communications users, including the military. Each military service has internal authorities which further administer communications. The Federal Communications Commission (FCC) is the governing authority for civilian, State and Local government communications. Although individual MARS members are civilians and FCC licensed Amateur Radio operators, their authorization to operate a MARS station comes from their respective MARS military service. MARS is removed from a members’ Amateur activities, and is federal in nature. MARS stations operate on behalf of their respective military service. Therefore, MARS operation is not regulated by the FCC, rather, is subject to the administration of the respective military service and the NTIA.

In the following discussion, it is important to keep these distinctions in mind.

5.1.1 Narrow and Wide FM

US Amateur practice is to use “wide” FM (20K0F3E) on the 144-148 MHz band. This is in conflict with current industry standards in use with public safety and federal government Land Mobile Radio (LMR) services where “narrow” FM (11K2F3E) is now or will shortly be required by regulation. Federal and military radio users in the 138 to 150.8 MHz band, including MARS, were required to transition all existing operations to narrow FM by Jan 1 2008. FCC Public Safety (Part 90) users were required to complete their transition before Jan 1, 2013. The issue has been publicized, debated, ignored and appealed for more than a decade. Although some of the deadlines have been extended, no exceptions or further extensions are expected.

Equipment type accepted under FCC Part 90 since 1995 is capable of operation in the narrow mode. Equipment capable of transmitting “wide” FM is being phased out and will no longer be type accepted in Part 90 after 2013, eliminating future availability in the United States to Land Mobile Radio (LMR) users. The significance of the availability of Part 90 type accepted equipment is significantly important for continued interoperability with stations that use professional grade LMR equipment.

While MARS does not fall under FCC Part 90, the reference is instruction to demonstrate the established regulatory direction of the mainstream LMR industry. In general, FCC Part 90 and NITA rules for LMR are harmonized in this subject area, and FCC Part 90 type acceptance of equipment establishes NTIA compliance.

All MARS VHF frequency assignments require “narrow” (11K2F3E) operation per AFMO and NITA.

Most modern Amateur VHF Radio equipment is capable of “narrow” (11K2F3E) operation as this is required in the European Amateur market.

5.1.2 Selection of radio equipment

The NTIA sets a very high standard for frequency stability and unwanted emissions. Radio equipment with FCC part 80 or FCC part 90 type acceptances, JITC certification, or military equipment carrying a US Nomenclature currently in use by US forces, meets these requirements.

5.1.2.1 Amateur Radio Equipment

Part 97 type acceptance does not alone imply suitability. Most Amateur Radio equipment is designed to meet regulatory specifications on Amateur frequencies only. Do not assume amateur radio equipment is suitable for operation on non-amateur frequencies, even though it may be easily modified to transmit. It is important to understand published specifications for amateur radio equipment usually applies only to amateur frequencies.

Individual MARS members are permitted to use modified Amateur Radio equipment on MARS frequencies provided operation of the equipment is in accordance with the NTIA Manual of Regulations (Red Book), chapter 5.

The individual member must determine their own station is operating in compliance with the NITA standards. This determination must be based on careful consideration the totality of the technical situation and may include such factors as:

- The members knowledge and experience applied to the interpretation of available information
- Measurements and observations, such as tests performed by the member, on behalf of the member, or published third party tests such as those performed by the ARRL lab
- Examination of other published specifications and schematics
- Modifications performed, and the effect of associated equipment

Note: A list published on the internet of amateur equipment meeting NTIA compliance, based on manufactures published specification, should not be used to disqualify equipment. This list uses the more stringent 43 + 10 log(px) formula as prescribed for HF Land Mobile service. This does not apply to Army MARS HF operations which are in the Fixed and Mobile Services.

5.1.2.2 Frequency Tolerance

Frequency tolerance for the HF Fixed and Mobile service is defined in chapter 5.2.1 of the NTIA Manual of Regulations (Red Book).

20 Hz or .67 PPM

5.1.2.3 Unwanted Emissions

The standards for unwanted emissions in the Fixed and Mobile service are located in chapter 5.3.1 of the Red Book. NTIA requires the peak power of any emission on any frequency removed from the center of the authorized bandwidth (BW) by a displacement frequency (fd) shall be attenuated below the peak envelope power (pX) of the transmitter in accordance with the following schedule:

fd > 250% BW 40 + 10 log(pX)

For practical purposes when comparing to published specification sheets harmonics and spurious emissions on any frequency greater than 7.5 kHz removed from the channel center must be suppressed to at least the following levels for the listed transmitter peak envelope power:

20 Watt - 53 db
50 Watt – 56.9 db
100 Watt - 60 dB
500 Watt - 66.9 db

5.1.2.4 Bandwidth

Army MARS high frequency authorizations between 2-30 MHz are assigned 2.8 kHz voice and 3 kHz data channel bandwidths. HF radio equipment should be capable of transmitting and receiving data modes up to 3 kHz in bandwidth.

For VHF operations, only narrowband transmissions are permitted. Bandwidth shall not exceed 11 kHz.

Frequencies are assigned to HQ Army MARS by the US Army Frequency Management Office, Fort Sam Houston, Texas, who coordinates worldwide assignments for all US Army units.

5.2 FREQUENCY TUNING

The “Assigned” frequency is considered the Center Frequency for the channel. Radio frequency assignments issued by a countries governing authority are usually communicated in this manner.

The frequency display on most SSB transceivers (AKA the "dial" frequency) indicates the suppressed carrier frequency – a frequency where very little if any RF is transmitted or received.

Properly operating SSB equipment transmits within the assigned channel. In order to ensure that transmissions remain within the channel structure, the dial frequency is offset from the assigned frequency.

For the frequencies listed on Army MARS plans, node guides and tables, this calculation has already been done based on parameters of the particular assignment. No further calculation is required.

Digital communications modes that operate through the audio path of a SSB transceiver use the same dial frequency and sideband as SSB voice mode. Dial frequency is not changed when transitioning between voice and data modes on the same channel. Audio Tones for relevant digital modes are listed in the Net Plan.

CW is tuned so the transmitted and received signal is matched to the assigned center frequency, instead of the SSB dial. Different models of transceivers display dial frequency information differently when in CW mode. A skilled CW operator will know the equipment and be accustomed to these adjustments. Table A-1 in Annex A of the Net Plan lists the appropriate center frequency for each designator.

5.2.1 Sideband Selection and Expression of Frequencies

Upper Side Band (USB) is the military standard for SSB communications through the entire MF/HF spectrum. Most radio services including Civil Aviation, Maritime Mobile, Navy/MC and Air Force MARS use USB exclusively. Army MARS uses Upper Side Band on all frequencies by default. Lower Side Band may be used briefly when it is necessary to avoid interference or for a specific operational need. If switching to LSB, observe the Assigned Frequency remains the same by shifting the dial frequency appropriately.

Operationally, HF SSB frequencies are not expressed by their "assigned frequency". For the sake of simplicity, the Dial Frequency is used to communicate frequencies numerically. For instance, for the assigned frequency 10,000.00 kHz, Upper Side Band or Lower Side Band would be expressed **"9,998.5 UPPER"** or **"10,001.5 LOWER"** respectively. In written expression, the abbreviations **USB** or **LSB** would be used in place of the words **"UPPER"** or **"LOWER"**.

5.3 DIGITAL COMMUNICATIONS

Digital modes are used extensively to facilitate the relay of bulk message traffic. Digital communications generally fall into two categories,

- Teletype style operation, where a digital transmission is used in place of voice between two human operators who are communicating directly to each other on behalf of themselves or another party.

- Partly or fully automated where messages are sent, received, forwarded or otherwise processed in an automated system with one or fewer human operators.

In Teletype style operations, voice and data transmission are often used in conjunction with one another on the same frequency. This is a highly efficient method of operation.

5.4 TRANSMISSION POWER LIMITATIONS

Reliability, Speed and Security are factors affected by transmitter power. Reliability and Speed are enhanced by transmitter power. Security is affected if the signal propagates into unnecessary areas because of too much power. When operating on battery / solar power, the use of high power increases battery re-charge time and decreases overall run time; however, frequent re-transmissions of unheard information because low power is used have the same effect.

Frequency selection as well as antenna gain, azimuth and elevation patterns are important factors in establishing and maintaining a radio communications circuit. You should not focus on simply using minimum power, but select power level based on a balance of these factors according to your circumstances and the nature of the communications circuit.

5.4.1 HF Power Limitations

For HF transmissions, stations should use the power necessary to achieve the desired communications. The Army Frequency Management Office (AFMO) recommends the following peak power limitations:

2-30 MHz--one kilowatt

"USE ONLY SUFFICIENT POWER TO ACHIEVE THE DESIRED COMMUNICATIONS."

OCONUS member stations may have additional power authorizations or limitations as coordinated by and through their Command Director and the US Army MARS Operations manager.

5.4.2 VHF Power Limitations

Average power limitations established by the Army Frequency Management (Spectrum) Office are:

50 watts maximum.

Repeater output power is on a case by case basis according to the authorization provided by the Army Frequency Management Office.

A base station is defined as a transmitter at a fixed location that communicates with mobile or other base stations.

Stations located within 90 miles of the Canadian or Mexican borders, or in the National Radio Quiet Zone (NRQZ) may have lower power limitations placed on them.

The NRQZ is located in Virginia and West Virginia within the rectangular shaped area South of 39 degrees 15 minutes North, North of 37 degrees 30 minutes North, West of 78 degrees 30 minutes West, East of 80 degrees 30 minutes West.

All fixed radio operations in this area must be coordinated through Army MARS headquarters so as not to interfere with the operations of the National Radio Astronomy Observatory.

5.5 ASSESSMENT

Answer these questions and submit your answers to your Training Officer or mentor.

1. What is the maximum transmitter power allowed to a station operating in MARS service near 3.0 MHz?

2. What is the maximum bandwidth allowed on VHF frequencies?

3. How is the dial frequency tuned for operating in digital modes?

4. Do you live in the National Radio Quiet Zone?

5. My Amateur Radio is FCC Type Accepted for Part 97. I can easily modify the equipment for operation out of the HAM bands. Does this imply it is suitable for MARS service?

6. What Directorate assigns frequencies for use by Army MARS?

Contact your Training Officer or Mentor and obtain "AM 2-200 Net Plan, Annex A" if you do not have a copy. You will need this to complete the Assessment questions.

Your MARS station should be ready to go on the air. Your transceiver should be able to transmit and receive through the entire 2-30 MHz range, and your antenna system should be capable of working efficiently on all of your region frequencies. Contact your mentor or MARS training officer if you have difficulty with these tasks.

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6 MILITARY COMMUNICATIONS

This chapter is your introduction to Military Communications and the operation of the MARS radio system. As a DoD Auxiliary, MARS is a military communications system. The foundation of Army MARS procedures is the Allied Communications Publications procedures, the same procedures used by US and Allied militaries.

On completion of this section, you will be able to:

- Explain the fundamentals of military communications.
- Apply the appropriate time zone to MARS operations using the 24 hour clock.
- Demonstrate proper use of the phonetic alphabetic.
- Explain the proper use of call signs, including when the use of complete call signs is appropriate.
- Identify and Differentiate between different station designators, addresses, routing indicators, and call signs.
- Identify call signs of the other MARS services.
- Explain the Minimize condition, and when it would be imposed.

Notice: Paragraphs 6.5 through 6.8 contain subject material in an unclassified (U) narrative addressing Station and Address Designators, Army MARS Call Sign Use, Other MARS Service/Agency Call Sign Systems, and MARS Frequency Designators.

The MARS member is directed to Army MARS Manual 2-200, FOUO NET PLAN, NOV 2014, Rev a, for more detailed "FOR OFFICIAL USE ONLY information about these topics.

A. FUNDAMENTALS OF MILITARY COMMUNICATIONS

Reliability Security Speed

These are the three fundamentals of military communications, with reliability ultimately the most important. Reliability must never be diminished or sacrificed to meet the conflicting demands of security, speed, or convenience. The relationship between reliability and speed is by nature elastic and must be balanced according to specific, existing conditions.

B. MINIMIZE

In an emergency, actual or simulated, when it is apparent or expected that communication capacity will be, or is severely overloaded, it may be necessary to drastically reduce radio message, telephone, and e-mail traffic by manual and computer based military message handling systems to ensure prompt handling and transmission of vital messages.

The instructions to reduce traffic will be made by the promulgation of the word MINIMIZE which has the following meaning: *"It is now mandatory that normal message, radio, telephone, and e-mail traffic be reduced drastically in order that vital messages connected with the situation indicated shall not be delayed."*

MINIMIZE may be limited in scope by the issuing authority; in that, MINIMIZE may only be directed at one or more specific communications capabilities. An example of limited scope MINIMIZE is restricting operations using Pactor-I and Pactor-II but allowing normal communications using Pactor-III (or other authorized digital modes). Because of its drastic nature and widespread effect, MINIMIZE shall not be imposed indiscriminately nor prematurely. Minimize procedure is thoroughly covered in ACP-121 sections 393-399.

The use of the words ADMIN ADMIN ADMIN spoken in succession is a procedural policy established by Region 4 Army and USAF MARS as a Joint Service MARS policy and procedure to bring current net operations to a halt for the purpose of an administrative announcement.

C. MILITARY CLOCK AND ZULU TIME

Time references are often expressed in Coordinated Universal Time (UTC), utilizing the 24-hour clock system. The initial "Z" (ZULU), following the time, indicates Coordinated Universal Time. All message traffic is prepared using ZULU date-time groups (DTG). See ACP-121 3A-1 through 3A-8.

To understand ZULU time, you must first understand military time. It is assumed you already understand the 24 hour clock, and know how to convert local time to UTC time. If you do not understand these concepts, contact your mentor.

6.3.1 Date

When it is necessary to indicate a date alone, express it by one or two figures indicating the date of the month followed by the first three letters of the name of the month, and the last four figures of the year. For example, "9 MAR" or "9 MAR 2015"; Do not use "09/03/15". Always indicate the year using the four digit year. US Army "written military correspondence" procedure is to indicate the date with “figure of day, three letter abbreviation of the month, followed by four digits indicating the year.

6.3.2 Date Time Group (DTG)

When indicating date and time together, the date time group (DTG) is expressed as six figures followed by the time zone letter designator. The first pair of digits indicates the date, the second pair indicates the hours using a 24-hour clock, and the third pair indicates the minutes past the hour. The DTG of a message will always be expressed in this manner followed by the time suffix letter "Z". This procedure slightly differs from that used in Para 6.3.1 above.

> **271630Z JAN 2015** represents 1630 Universal Coordinated Time on 27 January 2015.

D. PHONETIC ALPHABET

Efficient network operations require a thorough knowledge and use of the International Telecommunications Union (ITU) phonetic alphabet (see ACP-121 section 318). MARS members must have a working knowledge of the correct phonetic alphabet used in military communications.

E. STATION AND ADDRESS DESIGNATORS

Station and address designators encompass four categories, namely:

- Call Signs
- Address Groups
- Routing Indicators (RI)
- Plain Language Addresses (PLA)

Call Sign and Address Groups consist of many different types as listed below. To avoid confusion, when using the term call sign or address group in other than a general sense, it should be qualified by referring to the specific type of call sign or address group intended.

Call Signs (which may be individual or collective)

- Indefinite Call Signs are used in codress messages (encrypted messages) to conceal the identity of the originator. They are not normally used in Army MARS.
- International Call Signs are assigned to radio stations in all countries, civil and military, according to international agreement. The first or first two letters indicate the nationality of the station. Your issued MARS call sign is an international call sign.
- Net Call Sign represents all stations in a net. A net is a group of stations in direct communications with each other on a common channel. Example: A4A, A4H, etc. Tactical or Voice Call Signs are words, letters, numbers or a combination of letters and numbers that identify stations. Tactical/Voice call signs usually change daily, unless they are Static Voice Call Signs. An example of a Static Voice Call Sign is **DESERT EAGLE**.

Address Groups: (which may be individual or collective)

- Conjunctive Address Groups have incomplete meanings, and must be combined with other information.

- Geographical Address Group is a type of Conjunctive Address group used for a specific geographic area, for instance, ARMY MARS KENTUCKY, ARMY MARS REGION FOUR.

- Address Indicating Groups (AIG) is an address designator for a predetermined list of specific and frequently recurring combination of action and or information addressees. These are not normally used in Army MARS at this time.

Call signs and address groups are used in lieu of plain language for brevity purposes. Both call signs and address groups may become part of a plan for obtaining transmission security.

In Army MARS, you may be exposed to several types of Station and Address Designators in use by military stations, many of which are not commonly used by individual member MARS stations.

6.5.1 Call Signs

Army MARS call signs are authorized for use on MARS frequencies. In some emergencies or when exercising interoperability with other specifically authorized agencies, MARS call signs may be used on other government/military frequencies. MARS call signs will not be used on amateur radio frequencies.

Use of an Army MARS call sign binds the operator to the regulations, directives, and policies imposed by HQ Army MARS, NETCOM 9th SC, and the Department of the Army.

Army MARS Call signs consist of an internationally registered prefix code block followed by additional suffix codes. Army MARS prefix code blocks are authorized by Headquarters Department of the Army (HQDA) and provided to the Chief Army MARS for use and control. A prefix code block consists of three letters and a number based on geographical area or region. A suffix code block consists of two or three alpha-numeric characters based on station type.

Call signs are issued geographically and not duplicated. The eight different types of call sign assignments used in Army MARS are:

Special Billet	Individual Member
Members undergoing Basic Training	Civil & Government Agency Stations
Military Unit MARS Stations	Army MARS Club Stations
Net Call Signs	Auxiliary MARS Members

The terms “Call Signs” and “Calls” are sometimes incorrectly used interchangeably. A Call Sign identifies a particular station or person. A “Call” is a procedure used for one station to call another station or a group of stations.

1. Billet Call Signs.

Billet Call Signs are authorized for use by the HQ Army MARS Staff, the Chief's Special Staff, Region, and State special staff positions.

Billet call signs are issued to identify an individual’s specific area of responsibility within Army MARS. The Billet Call sign serves as a means of addressing a specific job function rather than an individual. Since billet call signs are not associated with a specific radio station, and individuals assigned to billet call signs have regular station call signs, billet call signs are the only call signs in Army MARS that can be published publicly. Billet Call signs should only be used as necessary to perform the leadership or staff functions.

2. Individual Member Call Sign

An individual call sign is issued to each volunteer member radio station.

3. Members in Training

The call sign of new members in training will temporarily have the combination "/T" (Slant Tango) appended to the end of their full call sign. This indicates that they are in a training status. Example: AAR4ZZ/T

4. Agency Call Signs

There are call signs and licenses for use by Agency Stations. These special call signs are allocated under two prefix blocks: "AAN" (Old Series) and “AAV” (New Series).

5. Military Unit MARS & Club Station Call Signs

Military unit MARS station are assigned a three number numerical suffix call sign. Army MARS Club stations are assigned a three letter suffix call sign.

U.S. military units may identify their station with assigned voice call signs or other military issued call sign when no unit MARS call sign has been assigned, or at their preference.

6. Net Call Signs

"Net" Call Signs are a collective call sign for all stations for which the net is intended. In Army MARS, the Net Call Sign is a call to all stations that conform to the conditions indicated in the Net Call Sign.

Army MARS uses three alpha-numeric characters to designate a net. This is further used as the Net Call Signs. The first character is always a letter, the second is always a number, and the last character is always another letter.

Net call signs for national nets are assigned by HQ AR-MARS, or the appropriate HQ Staff. Region and state level net call signs are assigned and managed by the Region Director. The meaning of Net Call Signs is shown in Table A-1, page 5, of the Army MARS Net Plan, AM 2-200.

6.5.2 Plain Language Address (PLA)

A Plain Language Address (PLA) is a unique shortened form of address for use in the address component of a message. It is used to indicate the originator and/or the addressee(s). PLA consist of the official title, short title or abbreviation of the command, organization or formation originating the message or being addressed in the message.

A PLA may not exceed 55 characters including spaces, and is always terminated by two oblique strokes or by a new line.

The PLA for an individual Army MARS station is the words “ARMY MARS STATION" followed by the regular call sign of that station.

Examples of PLA include:

- ARMY MARS HQ FT HUACHUCA AZ//
- ARMY MARS REGION FOUR DIRECTOR//
- ARMY MARS ALABAMA DIRECTOR//
- ARMY MARS STATION AAR4XY//

6.5.3 Routing Indicators (RI)

Routing Indicators are primarily station designators and have the fundamental purpose of indicating the communications point of destination to enable correct routing through message relay systems, either manual relay, automatic relay or computer based systems.

An example of an Army MARS routing indicator is: UHEADCM. This RI contains information necessary to route messages to or though this station. The RI is similar to a zip code. The meaning of each letter position in the "RI" can be found in JM 2-103, page 5, chap 1.2

In Army MARS routing duties are shared among several stations who take turn acting as major or minor relay stations. The individual member performing duty as the minor relay station UHEADCM on Tuesday is likely a different member than who performed this duty on Monday. However, they are trained to function identically so that they are interchangeable. This ensures depth in qualified and trained human resources and station infrastructure to support operations.

Additional information on Routing Indicators is available in ACP-121(I) para 528, ACP-127 (G), ACP-127 ANNEX 1, and JM 2-203.

F. ARMY MARS CALL SIGN USE (U)

A Full Call Sign is the complete international call sign, consisting of a prefix, suffix, number and all appendages. Full call signs are to be used on the following occasions:

- When first establishing communication or when first establishing a net.
- When reporting into a previous established net.
- In the transmission instructions and address components when a message is required to be relayed to another station on a different net.

An Abbreviated Call Sign is a derivative of a call sign for speeding transmission. Abbreviating call signs is a common practice in military communications and is preferred practice when appropriate.

Abbreviating call signs may occur during a directed net at the direction of the Net Control Station (NCS). When the following conditions are met, the use of Abbreviated Call Signs should be considered to enhance network efficiency.

- The stations communicating are well known to each other.
- Time is of the essence and the use of Abbreviated Call Signs will significantly increase speed. The use of Abbreviated Call Signs will not create confusion.
- The NCS decides if the use of abbreviated call signs will significantly enhance network operations, and he determines the potential for confusion if abbreviated call signs are used.

Abbreviated Call Signs may be used without a net control station present, between two stations communicating outside of a net, or during a free net. The stations involved must know each other's full call signs. This is permitted provided no other stations are involved or actively using the frequency.

An abbreviated call sign need only be unique to the other stations on the net at the time they are being used. The call sign abbreviations do not uniquely identify the station from all other stations in existence, at any time.

Call Signs are abbreviated in most cases by truncating to the last three characters (numbers and letters), or alternately, the last three letters of the call sign. State Director call signs are special cases and are truncated to the last two letters. Call signs with prefix AAN, AAS, are truncated to the last three letters. Examples:

AAR4RE is abbreviated to **4RE**
MEMBER CALL SIGNS IN ARMY MARS ARE AAR, (REGION NUMBER), LETTER, LETTER, AND ARE ABREVIATED TO NUMBER, LETTER, LETTER.

Additional Examples:

AAR4VK is abbreviated to **4VK**
AAA4FL is abbreviated to **FL**
AAA4RD is abbreviated to **4RD**
AAA4R3 is abbreviated to **4R3**
AAA4NC3 is abbreviated to **NC3**
AAR4FL is abbreviated to **4FL**
AAN4VA is abbreviated to **NVA**
AAA4RX is abbreviated to **4RX**
AAA4ALX is abbreviated to **ALX**
AAR8RAB is abbreviated to **RAB**

Call signs, to include those of other service MARS stations and governmental agencies, are always spoken phonetically, using the ITU phonetic alphabet. Exception: It is common practice not to use phonetics to express the NNN prefix of a Navy/Marine Corps MARS station call sign (see below).

6.7 OTHER MARS SERVICE/AGENCY CALL SIGN SYSTEMS

Air Force and Navy/Marine Corps MARS stations use the following call sign conventions:

6.7.1 Air Force

The Air Force call sign prefix is similar to the Army MARS system with the numerical digit relating to the region. The three alpha character prefixes are:

- "**AFA**, **AFB**, or **AFT**" - general membership
- "**AGA**" - military stations
- **"AFF" "AFS" or "AFN"**– State and Division staff positions

6.7.2 Navy/Marine Corps

All Navy/Marine Corps MARS stations, regardless of location or staff position, begin with the prefix "**NNNØ**". Station call signs are allocated on a sequential basis beginning with **NNNØAAA**. Navy MARS station military station call signs range from "**NNNØNAA**-**NNNØNZZ**" and Marine Corps military stations "**NNNØMAA**- **NNNØMZZ**". Navy/Marine Corps billet call sign suffixes begin with the letter **A**, **G** or **P**.

It is common practice not to express the **NNN** prefix with the phonetic alphabet when verbalizing a Navy/Marine Corps call sign.

6.7.3 Other Agency Call Signs

During emergencies and some training activities, other official government associated stations may be heard on specific MARS frequencies. For example, selected Federal Emergency Management Agency (FEMA) and National Communications System SHARES (SHAred RESources) stations have been approved to operate on selected MARS frequencies with call signs such as WGY901 and WGY912 (FEMA), and KGD34 (SHARES).

6.8 MARS FREQUENCY DESIGNATORS.

Army uses a letter followed by three numbers as frequency designators. Air Force and Navy-Marine Corps MARS programs all use three-letter frequency designators to indicate operational frequency information during network operations. Air Force also uses a service unique two letter designator system.

Frequency designators are designed to:

- provide a shorthand reference to MARS frequencies
- minimize confusion when changing net frequencies
- provide protection against willful interference and undesired monitoring of MARS operations
- provide protection against compromising frequencies by denying access to frequency lists by non-MARS members

Army MARS frequency designators consist of three alpha characters with the first character “M".

6.9 ASSESSMENT

Answer these questions and submit your answers to your Training Officer or mentor.

1. The most important fundamental of military communications is?
2. MARS uses a 24 hour clock. Which time zone is typically used to express time? What do we call it?
3. When are abbreviated call signs permitted in Army MARS?
4. An Army MARS call-sign beginning with **AAN** is what kind of station?
5. A MARS call-sign beginning with **NNN** belongs to what MARS service?
6. Write an example of a Net Call-sign (see Army MARS Net plan 2-11, Table 3.1)
7. Explain why the order to Minimize would be given.
8. Provide an example of an Army MARS frequency designator for a HF frequency.
9. "Army MARS Station AAR1XY//" is an example of which type of designator?
10. UHEHDC is what type of designator?

By this time, you should be listening to your State and Region Army MARS nets. Pay attention to the call signs you hear, see if you can determine what MARS service and membership type the call sign represents. Identify for yourself the net call sign. What billet call signs do you hear, and what jobs do these people have?

7 PROCEDURES

It is not the intent of this course to teach you everything there is to know about on-the-air procedures. Like any basic training, this course is designed to equip you with the basic knowledge necessary to become a functional part of the organization, and a foundation to learn more advanced material and develop skills with experience and time.

On completion of this section, you will be able to:

- Explain the benefits of standardized procedures used by MARS and other allied military organizations.
- Explain when Abbreviated Calls and Full Calls are used.
- Demonstrate proper use of pro-words and pro-signs, and differentiate between the two.
- Demonstrate how to call to another station.
- Properly format a teletype (digital) transmission.
- Demonstrate use of reference material to research procedures outside the scope of this course.

7.1 STANDARDIZATION OF OPERATIONS.

The ability to maintain efficient communications under all conditions depends on adherence to standardized operating procedures. MARS procedures are derived and developed from Army doctrine and the military Allied Communication Publications (ACP). For operations standardization, they are uniform with the procedures of Navy/MC MARS, Air Force MARS, and other NATO militaries.

There may be instances that arise in which a specific operating requirement is not completely covered by these instructions. Under these circumstances, an understanding of the Army MARS mission and intent, operator initiative, good judgment, and common sense must prevail.

7.2 BASIC VOICE PROCEDURES

Voice procedure is designed to provide the fastest and most accurate method of speech transmission. All messages should be pre-planned, brief and straightforward. Ideally, messages should be written down: even brief notes reduce the risk of error. Messages should be constructed clearly and logically in order not to confuse the recipient.

It is a fundamental principal of military communications to be as concise as possible. Therefore, pro-words that duplicate their meaning are not transmitted together.

7.2.1 Making a Call

The most basic procedure is making a call to another station. This is done using a Full Call procedure. A full call contains the call sign of the station you are calling, the pro-word THIS IS, followed by your call sign and ending with the pro-word **OVER**.

AAR4YOU THIS IS AAR4ME OVER

A full call is always used when making initial contact with another station.

After the initial call between two stations using Full Calls, call signs should be dropped altogether unless confusion is likely to arise by so doing.

If necessary to reduce confusion, stations may use the Abbreviated Call procedure. An Abbreviated Call is the pro-word **THIS IS** followed by your call sign at the beginning of a transmission. For the purpose of clarity in the examples provided in this manual, the abbreviated call procedures is illustrated in most examples.

THIS IS AAR4ME…

Do not become confused between an Abbreviated Call and an Abbreviated Call-Sign. They are two entirely different concepts.

7.2.2 Procedure Words (pro-words)

Pro-words are used to achieve brevity during voice communications. These words are used to convey certain frequently used orders, instructions, and information related to communications. Knowledge of pro-words enhances brevity and clarity of network exchanges.

The following short list of pro-words are fundamental to efficient voice communications. A complete list is available in ACP-125(f) Chapter 3 Annex A

7.2.2.1 "OVER" / "OUT"

A voice transmission is always concluded with either the pro-word "**OVER**" or "**OUT**", but never both "**OVER**" and "**OUT**" together.

These pro-words signify to the station with which you are in contact that your transmission is completed and that you are either awaiting a response ("**OVER**"), or not awaiting a response ("**OUT**").

When entering a net always conclude your check-in with the pro-word "**OVER**" because you are awaiting acknowledgment from the NCS of your check-in. It is normally proper protocol to allow the originating station to terminate the contact with the pro-word "**OUT**". However, if you are given an instruction and no further conversation is necessary to complete the instruction, you will end with the proword "**OUT**". Examples of this follow in Chapter 7.

7.2.2.2 "WAIT" / "WAIT OUT"

If it is necessary to pause during a transmission for any reason, the pro-words "**WAIT**" or "**WAIT OUT**" will be used.

The pro-word "**WAIT**" is used when the pause required will last for only a few seconds; "**WAIT OUT**" is used when the pause requires more time. The time period associated with the use of "**WAIT OUT**" should be as short as possible so network operations are not delayed.

Although the pro-word "**WAIT OUT**" ends with "**OUT**" the communication between these two stations is not yet complete, therefore no other station will transmit during this pause unless they have emergency traffic or traffic of a higher precedence than that being handled.

7.2.2.3 "ROGER"

The pro-word "**ROGER**" signifies only that you understand the information transmitted to you, without indicating approval or disapproval.

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7.2.2.4 "WILCO"

The pro-word "**WILL COMPLY**" or its contraction "**WILCO**" may be used interchangeably. It is used in response to a request or tasking and means that you understand the tasking (thus no need to use in conjunction with the pro-word "**ROGER**") and agree to accomplish the task.

7.2.2.5 "BREAK"

The pro-word "**BREAK**" has two purposes.

- Used in the transmission of messages to signify the breakpoints between the message heading and the text of the message, spoken once as "**BREAK**" or written as the operating signal "**BT**", and again following the end of the message text.
- During voice message relay between two stations, "**BREAK**" spoken once tells the sending station to stop transmitting and allow the receiving station to request repetitions.

Do not use the pro-word "**BREAK**" to conclude communication with one station and immediately establish it with another.

7.2.2.6 "WORDS TWICE"

Communications is difficult. Transmit each phrase twice.

7.2.3 Rules for Spelling

7.2.3.1 Plain Text

Spelling is necessary when difficult radio conditions prevent the reception of an obscure word, or a word or group that is unpronounceable. Such words or groups within the text of plain language messages are spoken using the standard phonetic word alphabet (see Annex 5.4), preceded by the pro-word "**I SPELL**". If the word is pronounceable and it is advantageous to do so, then it should be spoken before and after the spelling to help identify the word.

For example, "**CATENARY, I SPELL CHARLIE ALPHA TANGO ECHO NOVEMBER ALPHA ROMEO YANKEE, CATENARY.**" Proper names such as people, cities, streets etc. may often require phonetic spelling.

7.2.3.2 Single letters

Single letters will be spelled phonetically preceded by the pro-word "**INITIAL**". However, the words "I" and "a" are considered words, not initials; they are not spoken phonetically.

Exceptions to this rule, when letters are always spoken phonetically wherever they appear, and without the pro-word "**I SPELL**" are:

- Call signs
- Date time group (DTG) zone suffixes
- Grid References
- Authentication
- Address groups
- Encrypted text

7.2.4 Rules for Figures.

When radio conditions are satisfactory and confusion will not arise, figures in the text of a message may be spoken as in normal speech. During difficult conditions when there is a need to distinguish between numerals and words similarly pronounced, or when extra care is necessary to avoid misunderstanding, numbers are sent digit by digit preceded by the pro-word "**FIGURES**". This pro-word warns that figures follow immediately, to help distinguish them from other similarly pronounced words.

Single digits may be preceded by the pro-word "**FIGURE**" in order to alert the receiving station that a single digit follows.

Numbers between 10 and 20 may be spoken as a single word. For example, the number 16 can be spoken as "**FIGURES SIXTEEN**".

Decimal points within the number are spoken as "**DAY-SEE-MAL**" and exact multiples of hundreds and thousands are spoken as such.

Exceptions to this rule, when figures are spoken digit by digit whenever they appear, and without the pro-word "**FIGURES**" are:

- Call signs
- Grid References
- Authentication
- Date Time Groups (DTG)
- When preceded by the pro-words "**NUMBER**", "**TIME**", or "**GROUPS**".

Roman numerals are spoken by spelling out the characters making up the numeral. Spelling the letters avoids confusion and requiring an operator to convert Roman numerals to their numerical equivalent. For example, the Roman numeral "IX" will be spoken as "...**FIGURES ROMAN I SPELL INDIA X-RAY**."

The pro-word "**PERIOD**" may be used to indicate the end of a sentence during voice communications.

E-mail addresses that include the "at sign" (@) and periods are spoken as "**AT SIGN**" and "**DOT**". For example, the e-mail address JIM.JONES@US.ARMY.MIL is spoken as "**JIM DOT JONES, AT SIGN, US DOT ARMY DOT MIL**". In poor conditions or where unpronounceable words appear, the entire address may be spelled out phonetically.

7.2.5 Rules for Groups and Mixed Groups

The rules for sending mixed letter/figure groups incorporate the same principles that apply to sending letters and figures separately.

Example:

Mixed group	spoken as
ACP 125	**I SPELL ALFA CHARLIE PAPA FIGURES ONE TWO FIVE**

Station and net call signs are not considered mixed groups; they are transmitted phonetically and are not preceded with the pro-word "**I SPELL".**

7.2.6 Abbreviations

Although originally designed to save time in writing, abbreviations will often save time in speech. Many abbreviations are so commonly used in normal speech they are more familiar than their original unabbreviated form. The use of such abbreviations in radio transmissions is to be encouraged provided that:

- They are quicker and easier to use than the full word.
- They are sufficiently well known to avoid any confusion and subsequent confirmatory transmissions.
- Where an abbreviation has more than one meaning, the intended meaning is obvious to the addressee from its context or frequent usage.

Whether abbreviations are spoken as such, spelled phonetically or expanded to their unabbreviated form, will depend on prevailing radio conditions and the circumstances in which they are used. The following common sense rules should be applied to take account of conditions:

- Satisfactory Conditions. To ensure that the advantage of brevity which abbreviations provide is not lost, they will be spoken as in normal speech.

  Examples:

  RV as RV instead of “I spell Romeo Victor”

  ETA as ETA instead of “I spell Echo Tango Alfa”

- Difficult Conditions. In conditions which require amplification of common abbreviations normally spoken as such, it is usually quicker and easier to use the full word than to waste time and effort in spelling.

  Where any doubt exists as to the drafter’s intentions, abbreviations should never be expanded but spelled phonetically leaving the addressee to interpret the meaning. The abbreviation DF can mean “Defensive Fire,” “Direction Finding,” or “Disposition Form.” If the intended meaning is not obvious, then DF should be spelt phonetically.

7.3 BASIC TELETYPE PROCEDURES

Teletype operations refer to the function of transmitting and receiving of text messages from one station to another, where station operators are present at each station and no automated functions occur. The specific digital mode used for transmittal may be any of the authorized modes, and is not limited to FSK (RTTY).

It is understood that modern microprocessor and personal computer based equipment is used with approved waveforms such as described in the Net Plan. It is understood that the macro functionality in the communications software will be used to simplify calling, answering and ending transmissions. This training intent is to explain the operation of this communications mode in the MARS system. The technical configuration of these modes and equipment is beyond the scope of this training. Contact your mentor for further guidance.

It is a fundamental principal of military communications to be as concise as possible. Do Not transmit RYs at the beginning and end of transmissions, tag-lines or signature lines at the end of transmissions, artwork, or un-necessary identifications, etc.

Further information about Teletype Operations may be found in ACP-126(c)

7.3.1 Transmission Beginning

Every transmission shall begin with 5 spaces and 2 carriage returns. This insures enough characters for synchronization.

7.3.2 Time of Transmission Indicator

All transmissions are to indicate a time of transmission indicator. This is expressed as a time group in Zulu time and is to be the time the transmission commenced. This indicator follows the 5 spaces and 2 carriage returns, and is the first line of text in a transmission.

7.3.3 Transmission Ending

Every transmission shall end with the pro-signs **K** or **AR** except for messages which end with the end of message function of eight line feeds, and the letters **NNNN**. The pro-sign **K** follows the letters **NNNN** on the next line if a response from the receiving station is expected.

7.3.4 Calling

In establishing communications a call is usually required. The preliminary call may be to an individual call sign, a net call sign or to several individual call signs.

A call consists of the transmission of the identification of the station(s) with whom communication is desired, the pro-sign **DE**, the identification of the station calling and the pro-sign **K**. Note the following example, the time of transmission indicator, followed by the call, ending with the appropriate pro-sign.

1234Z
AAR4AA DE AAR4BB K

7.3.5 Answering

In answering a call, stations will transmit identification of the calling station, the pro-sign **DE**, the identification of the answering station and the pro-sign **K**. When no confusion will result, however, the answer may consist of the pro-sign **DE**, the identification of the answering station and the pro-sign **K**.

1234Z
AAR4BB DE AAR4AA K

1234Z
DE AAR4AA K

7.3.6 Testing Circuits

When a station wishes to test a circuit which has just opened, a test may be transmitted as follows (it is best to load this as a macro so you do not have to type it):

1234Z
AAR4AA DE AAR4BB
TEST THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG
1234567890
RYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRY
INT ZBK K

Note the pro-sign **INT** indicates a question or "interrogative" follows. The code **ZBK** indicates a type of radio check. A complete listing of the Z codes are not included here, but available in ACP-131(e).
In this case, AAR8AA determines that operation is satisfactory for the reception of traffic and answers:

1234Z
AAR4BB DE AAR4AA
ZHN1 K

7.3.7 Procedure Signs (pro-signs)

Pro-signs are used to achieve brevity during digital communications. These words are used to convey certain frequently used orders, instructions, and information related to communications. Knowledge of pro-signs enhances brevity and clarity of network exchanges.

Do Not use pro-words used in voice communications in teletype operations. Use the appropriate pro-sign.

The following short list of pro-signs are fundamental to efficient digital communications. A complete list is available in ACP-126 (c) chapter 2, or FM 24-19 chapter 5.

AR End of transmission – Similar to pro-word "**OUT**". "This is the end of my transmission to you, and no response is required or expected".

AS Wait -
(1) **AS** made during a transmission and without an ending sign indicates a pause for a few seconds.
(2) **AS** followed by **AR** indicates "You are to wait" or "I am obliged to wait", as applicable.

B More to follow.

BT Long Break - "Indicates the separation of the text from other portions of the message or portions indicated".

C "**C**" alone means "You are correct".

DE From - "This transmission is from the station whose designation follows".

EEEEEEEE Error The error sign will be followed by the last word correctly transmitted.

HM HM HM Emergency silence sign. ("Silence").

K Go ahead – Similar to pro-word **OVER**. "This is the end of my transmission to you and a response is necessary. Go ahead; transmit".

R Received - "I have received your last transmission (or messages)".

7.4 REFERENCE MATERIALS

There are additional procedures and other information that is beyond the scope of this BASIC training course. A thorough reading and memorization of the material in these documents is not necessary for completion of this course, and is not recommended. You should be aware of these documents, their relative usefulness and the type of information they contain, and be able to use them as an appropriate reference later in your MARS career.

- Army Regulation 25-6, 2007
- Army MARS Net Plan AM 2-200
- Other "AM" series Manuals
- Your State / Region OPLAN

    - Allied Communications Publications ACP-121(i) Communications Instructions General
    - Allied Communications Publications ACP-125(f) Radiotelephone Voice
    - Allied Communications Publications ACP-126(c) Communications Instructions Teletypewritter
    - Allied Communications Publications ACP-131(f) Operating Signals

The Allied Communications Publications (ACP) are the basis MARS procedures. This course is built on the material in the current and previous versions of the ACP. Examining previous version of the ACP is sometimes helpful when researching a procedure that is unclear in the most recent version.

7.5 ASSESSMENT

Answer these questions and submit your answers to your Training Officer or mentor.

1. The pro-word used to end a transmission and the conversation is?
2. The pro-sign used to indicate, “this is the end of my transmission to you and a response is necessary. Go ahead; transmit”, is?
3. The pro-word to signify understanding is?
4. Where can additional procedures not covered in this course, such as the “Method of Synchronizing Time” be found?
5. When calling another station, whose call sign is transmitted first? HIS CALL SIGN, YOUR CALL SIGN?
6. What pro-sign is used to indicate an error?
7. What is transmitted at the beginning of each teletype transmission?
8. What is the difference between a Pro-Word and a Pro-Sign?
9. When are Full Calls required?
10. What is the difference between an Abbreviated Call and an Abbreviated Call-Sign?

Using your State’s VHF frequencies, or your region’s HF frequencies (during non-net times), practice the concepts of this chapter with your mentor. Use a log sheet to log your activities.

8 NETWORK OPERATIONS

MARS Network Operations are an important part of Army MARS work product. Command and Control (C2) functions are conducted in an organized fashion in Network Operations. In Nets, messages are transmitted, relayed, re-filed, received and delivered from the originating customer to destination in routine and extraordinary conditions. It is for this reason we exist.

Army MARS members require a thorough knowledge of the purpose, function and proper conduct of radio network operations. In situations where there is no documented guidance, the Net Control Station (NCS) may be required to decide on an appropriate course of action to deal with an unusual situation. In these cases, the NCS must exercise good judgment and initiative based on what is reasonable, required and meets the overall mission and intent of the Army MARS program.

On completion of this section, you will be able to:

- Explain the function of the Net Control Station.
- Demonstrate proper check in procedure to an Army MARS voice net using both Full and Abbreviated Procedures.
- Demonstrate proper net control procedures, using an alternate net control.
- Explain Directed and Free Net condition.
- Explain procedures for traffic relay, repetition and corrections.
- Explain the close down procedures.

Most of the examples provided in this chapter will focus on voice net operations. Digital net operations are similar in concept and do not warrant duplicate examples in this Basic Training.

For the purposes of this procedure, the Net Call of "**NET**" and NCS Station Call of "**AAR4NCS**" are used as examples only, actual Net Call and NCS Call shall be substituted during Nets.

8.1 NET CONTROL STATION (NCS)

Army MARS non-automated networks are directed by Army MARS net control stations. The NCS may be assigned or drawn from net participants. In the absence of the assigned NCS or ANCS, any member present may open and operate the scheduled network. Sustained emergency communications operations will require a large pool of operators qualified and ready to assist in maintaining continuous networks. As such, all Army MARS members are required to understand basic NCS functions and be prepared to assume NCS responsibilities.

8.2 NET OPERATION

The NCS directs all net operations. This includes opening the net at the proper time; ensuring proper net operation and discipline in accordance with Army MARS policies and procedures; directing message traffic relay; ensuring that appropriate training is conducted in accordance with state/region training programs; conducting other appropriate network activities; and closing the net at the proper time. A typical net outline will flow as follows:

- NCS transmits net call up
- Initial members check-ins
- NCS acknowledges check-ins
- NCS recognizes or assigns ANCS
- NCS directs/clears all listed traffic

- NCS conducts official MARS business
- NCS or designated instructor conducts training
- NCS may poll the net for information, questions or comments if appropriate.
- NCS declares net free as appropriate
- NCS closes the net

Army MARS VHF network operations provide more localized traffic and emergency operations support. VHF MARS networks may be conducted using repeaters or as simplex operations and are conducted essentially the same as those on HF.

8.2.1 Directed and Free Nets

Nets are either directed or free.

- A directed net is one in which it is necessary to obtain permission from the NCS before transmitting to other stations in the net.

- A free net is one in which any station may communicate with any other station without first obtaining permission from the NCS.

Designate free and tactical nets are deemed to be a free nets unless otherwise ordered. When it is required to change a free net into a directed net, or vice versa, one of the phrases "**THIS IS A FREE NET**" or "**THIS IS A DIRECTED NET**" shall be used by the NCS.

Regional networks automatically open as directed nets but assume free net status on assigned regional net frequencies at the termination of scheduled net(s) operations and are available for stations to conduct direct communications. This includes training, technical discussion, digital mode operations, and propagation and equipment checks. These exchanges should be held to a reasonable length of time. If three or more stations are on frequency, an NCS station will be designated to control/direct activities.

8.2.2 Abbreviated and Full Procedures

Once a net is started, it will normally operate in Abbreviated Procedures. The Net Control Station may, however, order the net to revert to full procedures. Region 4 Army MARS nets shall use Full Procedures on initial check-ins.

During Abbreviated Procedures the following applies:

- The Net Control Stations Call Sign is normally omitted from calls to the NCS. Initial Calls (when sending traffic) are optional.
- For speed of working when conditions are good, particularly on large nets, the proword "**THIS IS**" may be omitted from all calls. In the examples presented in this training, the proword "**THIS IS**" is included for clarity of instruction; however it may be omitted in actual operation based on the good judgment of the operator.

If, when establishing the net, the NCS judges that conditions are such that the use of abbreviated procedure will cause unnecessary repetitions, the NCS orders the use of Full Procedure. Once the net has been established, the NCS transmits:

NET THIS IS AAA4NCS USE FULL PROCEDURE OUT

During Full Procedures, the use of all prowords and call signs that were optional in Abbreviated Procedures become mandatory.

When conditions return to normal, the NCS is to order that the net return to abbreviated procedure. The NCS orders the use of abbreviated procedure:

NET THIS IS AAA4NCS USE ABBREVIATED PROCEDURE - OVER

Because the NCS used the proword "**OVER"**, each station must answer in turn using abbreviated procedure:

THIS IS AAR4XX ROGER OUT
THIS IS AAR4YY ROGER OUT

Alternatively, this call can be put out ending with the pro-word "**OUT",** when no response is requested from the net.

Note: At this time, Navy/Marine Corps MARS and Air Force MARS use Full Procedure exclusively. Use Full Procedure at all times when on a Navy/Marine Corps MARS or Air Force MARS network.

8.2.3 Net Opening

Army MARS networks are opened and closed at prescribed times as published in your region net schedule. Nets are normally opened at one minute past the assigned time. If the scheduled NCS fails to open the net at the appointed time, the assigned alternate NCS (ANCS) or any other member will open the net after one additional minute.

8.2.4 Net Check-In

The NCS will make a Net Call Up by giving the net call twice followed by "**THIS IS"** and his/her call sign and the proword "**OVER".**

NET, NET, THIS IS AAR4NCS – OVER

Full Call procedures must be used on any initial check-in to a net.

8.2.4.1 When Full Call Procedures are in effect:

All stations will call into the net using a full call procedure, pause briefly after verbalizing the NCS call. Transmit and say, "(The Net Control Stations Call Sign)", release the transmit key, pause, and listen to ensure there are no conflicting transmissions, then transmit, "**THIS IS,** (Your Station call sign), **OVER.**"

AAA4NCS, (Pause & Listen), THIS IS "YOUR STATION CALL SIGN," "YOUR STATE," OVER

8.2.4.2 Stations without traffic

Transmit and say, **"THIS IS**, (Your Station call sign)(Your State), **OVER".**

AAA4NCS, (Pause & Listen), THIS IS "YOUR STATION CALL SIGN," "YOUR STATE," OVER

Do not include, "No Traffic" in this call

8.2.4.3 Stations with traffic

Stations with traffic transmit, AAR4NCS (Pause & Listen) **"THIS IS**, (Your Station call sign), (your state), (list traffic by precedence and destination), **OVER".** The destination of the traffic can be given as a call sign, a city or town if in-state, a state or, if for OCONUS destinations, a country or

APO with zip code.

AAR4NCS, (Pause & Listen), THIS IS "YOUR STATION CALL SIGN," "YOUR STATE,"
"ONE ROUTINE FOR AAR4AA – OVER."
(Additional Examples)
AAR4NCS, (Pause & Listen), THIS IS AAR4XX ALABAMA ONE ROUTINE FOR AAR4AA – OVER
AAR4NCS, (Pause & Listen), THIS IS AAR4YY KENTUCKY TWO ROUTINE FOR AAR4XX OVER
AAR4NCS, (Pause & Listen), THIS IS AAR4ZZ FLORIDA ONE PRIORITY AND ONE ROUTINE FOR AAR4CC - OVER

8.2.4.4 Stations with additional information

In addition to traffic reports, stations may include additional information and requests as appropriate. Examples include:

AAR4NCS, (Pause & Listen), THIS IS AAR4ZZ FLORIDA REQUEST TO CLOSE DOWN 1145Z OVER
AAR4NCS, (Pause & Listen), THIS IS AAR4ZZ FLORIDA REQUEST COMS WITH AAR4AA OVER
AAR4NCS, (Pause & Listen), THIS IS AAR4ZZ FLORIDA INFORMATION FOR THE NET, OVER
AAR4NCS, (Pause & Listen), THIS IS AAR4ZZ , NORTH CAROLINA OVER

8.2.4.5 Late Check In

Stations entering a net after initial check-in will wait until the current net operation (conversation or exchange) is complete and after hearing the pro-word "**OUT**". However, stations will not attempt to enter the net when:

- The station transmitting has used the pro-word "**WAIT OUT**". Even though the station has ended his transmission with the pro-word "**OUT**", the net operation is not complete.
- The NCS directs traffic relay ending his transmission with the pro-word "**OUT**". Once again the net operation is not complete until the traffic relay is completed.
- Traffic is being acknowledged for receipt by stations transmitting sequentially in net roster order when traffic is sent to the net.

Once the net operation is complete the station entering the net uses the check-in procedure described above.

The net status automatically returns to directed status whenever a station checks in. The NCS may then continue the net in directed status or change it to free status as appropriate.

8.2.5 Acknowledging Station Check-ins

For multiple station check-ins, the NCS will acknowledge all stations at one time rather than individually as follows: "(list the call signs and their traffic in the order heard), **"THIS IS** (NCS call sign) **ROGER, OUT**". It is understood that the stations checking in follow the NCS as the first station in the net roster.

AAR4XX AAR4YY AAR4ZZ THIS IS AAR4NCS, ROGER OUT

If the NCS cannot understand the identity of the calling station(s), the NCS transmits:

UNKNOWN STATION(S), THIS IS AAR4NCS, SAY AGAIN, OVER.

If the NCS understands the station's identity, but fails to understand other transmitted information, the NCS transmits:

AAR4YY THIS IS AAR4NCS, SAY AGAIN, OVER

Once the NCS feels that all of the initial stations have been acknowledged, he/she should call the net and transmit the net roster in Informal Message Format~ (ACP125(t) sec 506) Include the designation of the ANCS and the actual designator of the alternate frequency. Example:

NET THIS IS AAR4NCS – ROUTINE - THE FOLLOWING STATIONS ARE IN THE NET, AARNCS, AAR4XX, AAR4YY, AAR4ZZ, ALTERNATE NET CONTROL STATION IS AAR4YY – ALTERNATE FREQUENCY IS M123 – TIME 1234 ZULU - OUT

8.2.6 ANCS Assignment

The NCS assigns ANCS duties to one or more station.

AAR4XX THIS IS AAR4NCS, YOU ARE ALTERNATE NET CONTROL STATION. OVER.

The station called to be ANCS responds:

THIS IS AAR4XX WILL COMPLY, OUT
ALTERNATELY: THIS IS AAR4XX WILCO, OUT

This indicates to the NCS that the ANCS accepts the assignment and has properly copied the net roster to that point. If for some reason the ANCS does not have a complete net roster, he will request it from the NCS at this time.

8.2.7 Net Call Up for Additional Stations

The NCS should make frequent Net Call-Ups to allow additional stations to enter the net, and to allow existing netted stations an opportunity to list traffic.

NET THIS IS AAR4NCS ADDITIONAL STATIONS, OVER

The phrase "Additional Stations For the Net" is not a recommended procedural phrase.

Note: The net call sign is a collective call sign for all the stations in the net. A call to the net call-sign, ending with **OVER**, and made without additional words such as **"ADDITIONAL STATIONS"** represents a call being made by the NCS in which he/she is requesting each of the current stations in the net to respond in net roster order and therefore should not be used unless such a response is being requested.

NET, THIS IS AAR4NCS, OVER.
EACH STATION RESPONDS **IN NET ROSTER ORDER**
THIS IS AAR4ZZ OVER

Stations joining the net at a later time should be given their place in the roster.

AAR4ZZ THIS IS AAR4NCS, ROGER, YOU FOLLOW AAR4YY, OUT.

The use of the phrase "In the net roster" is not a recommended procedural phrase.

In the case of multiple stations:

AAR4YY, AAR4ZZ, THIS IS AAR4NCS, ROGER, YOU FOLLOW AAR4XX, OUT

8.2.8 Checking for Relays

If propagation conditions are poor, once the NCS acknowledges check-ins that he is able to hear, he may call the ANCS or another appropriate station to determine if there are any relays.

AAR4XX THIS IS AAR4NCS MAKE A NET CALL UP, OVER

The ANCS responds, "**THIS IS** (Station call sign) **WILL COMPLY (OR WILCO), OUT**" He then performs the function by transmitting

NET, THIS IS AAR4XX, ADDITIONAL STATIONS, OVER

Stations not previously recognized will check-in at this time.

AAR4XX THIS IS AAR4QQ (STATE) ONE ROUTINE ALABAMA, OVER

The station representing the NCS responds to calling stations as described previously.

AAR4QQ THIS IS AAR4XX, ROGER, YOU FOLLOW AAR4ZZ, OUT

The station (ANCS) representing the NCS pauses slightly to give the NCS an opportunity to respond if they copied by intercept. If the NCS copied by intercept, the NCS will transmit:

THIS IS AAR4NCS, COPIED BY INTERCEPT, OUT.

If the NCS does not respond, the ANCS representing the NCS then reports additional check-ins to the NCS by transmitting,

AAR4NCS THIS IS AAR4XX, DID YOU COPY BY INTERCEPT? OVER

The NCS either has or has not copied the calling station by intercept and responds:

- NCS copied by intercept: **THIS IS AAR4NCS AFFIRMATIVE, OUT**

- NCS not able to copy by intercept: **THIS IS AAR4NCS NEGATIVE, REQUEST RELAY, OVER**

If relay is required:

THIS IS AAR4XX I RELAY AAR4QQ, ONE ROUTINE ALABAMA, OVER

The NCS acknowledges the check-in of the additional stations, notes their traffic reports, information and/or requests, establishes their position in the net roster and continues with the net.

Any station who can hear stations attempting to check-in but who are not acknowledged by the NCS or ANCS, should wait for an appropriate pause and notify the NCS by transmitting, **"THIS IS** (Station call sign), **I RELAY** (Call sign of station(s) attempting to check-in) (traffic report and information), **OVER".** The NCS will then acknowledge these stations, enter them into the net roster and continue with net operations.

Stations that are unable to copy the NCS should include that information during their check-in

transmission. As a technique these stations can identify a station they are able to copy in order to streamline the follow-up relay process.

8.2.9 Net Roster

The NCS is responsible for maintaining a current net roster. The NCS informs the ANCS and the net of deletions when stations leave the net. For example:

NET, THIS IS AAR4NCS, NET DELETE AAR4ZZ. AAR4QQ YOU FOLLOW AAR4YY, OUT

Should more than one station leave the net, the procedure will be altered accordingly. Periodic declaration of the complete net roster during net operations is not required, however, it is a technique available to the NCS as the NCS deems necessary in order to maintain net discipline. Use the Informal Message Format (ACP125(t) sec 506).

8.2.10 Delegating and Assuming Net Control

It may be necessary for net control to be delegated to a subordinate station when effective net control cannot be maintained by the NCS or when the NCS has to leave the net for any reason. In such cases, the proword "**ASSUME CONTROL**" is used. See additional examples in ACP-125(f) paragraph 610.

AAR4XX THIS IS AAR4NCS – ASSUME CONTROL - OVER

The use of the proword **OVER** in this example requires a response from the called station accepting the assignment. The net roster will be transmitted to station assuming control if necessary. The station directed to assume control will make a call to the net and inform the net he has taken over as the NCS.

NET, THIS IS AAR4XX – I AM CONTROL – OUT

8.2.11 Signal Reporting

A station wanting to inform another station of his signal strength and readability will do so by means of a short concise report of actual reception such as, "**WEAK BUT READABLE**", "**LOUD BUT DISTORTED**", "**WEAK WITH INTERFERENCE**", etc. Reports such as "**FIVE BY FIVE**", "**FOUR BY FOUR**", or "**LIMA CHARLIE**" will not be used to indicate strength and quality of reception (See ACP-125(f) section 611)

Report of Signal Strength

LOUD Your signal is very strong.
GOOD Your signal strength is good.
WEAK Your signal strength is weak.
VERY WEAK Your signal strength is very weak.
FADING Continuous reception is not possible due to fading.
INTERMITTENT Your signal is intermittent

Report of Readability

CLEAR The quality of your transmission is excellent.
READABLE The quality of your transmission is satisfactory.
UNREADABLE I cannot read you.
DISTORTED Your signal is has distortion. **WITH INTERFERENCE** Your signal has interference

Stations with a need for a signal report will request such checks by transmitting:

AAR4TC THIS IS AAR4BE. RADIO CHECK, OVER

AAA4TC hears AAT4BE loud and clear and replies:

AAR4BE THIS IS AAR4TC. ROGER, OUT

Note "**LOUD AND CLEAR**" is not verbalized in the example. It is assumed the signal report is Loud and Clear.

The NCS may wish to obtain a radio check from every station in the net, to check propagation conditions or determine if communications still exist. The NCS will make a call to the net call sign, ending with the proword "**OVER**". A response from all net stations is required in net order.

NET THIS IS AAR4NCS. RADIO CHECK, OVER

All net stations hear AAR4NCS loud and clear except AAR4TC and AAA4NC. The replies of each station, **in net roster order**, are:

THIS IS AAR4GV, ROGER, OVER
THIS IS AAR4TC, WEAK WITH INTERFERENCE, OVER
THIS IS AAA4TN, ROGER, OVER
THIS IS AAA4NC. GOOD READABLE, OVER
THIS IS AAR4BE, ROGER, OVER

The NCS indicates his reception of each of the net stations was loud and clear by replying:

NET THIS IS AAR4NCS. ROGER, OUT

If all stations were not loud and clear, for example AAR4TC who was weak and distorted, and AAA4TN1, who was not heard, the NCS would transmit:

NET THIS IS AAR4NCS. ROGER. AAR4TC WEAK AND DISTORTED. AAA4TN1 NOTHING HEARD. OUT

8.2.12 Directing a Shift in Frequency

The NCS directs the net to change to a new frequency using a frequency designator. (See ACP-125(f) sec 608)

NET THIS IS AAR4NCS. CHANGE TO FREQUENCY MIKE ONE TWO THREE.. OVER

Because the proword **OVER** is used, each station in the net is required to answer in order.

THIS IS AAR4XX. ROGER, OUT
THIS IS AAR4XY, ROGER, OUT
THIS IS AAR2XZ, ROGER, OUT

When the shift has been executed, the NCS will re-establish the net on the new frequency by following the procedures described previously. Example:

NET, NET THIS IS AAR4NCS. OVER
Alternately under good propagation conditions:
NET THIS IS AAR4NCS OVER

Stations will check into the net on the new frequency using procedures described previously, as it is being re-established.

THIS IS AAR4XX., OVER
THIS IS AAR4XY, OVER
THIS IS AAR2XZ, OVER

8.2.13 Traffic Relay

Following station check-ins, the NCS directs the relay of listed traffic in order of precedence. Traffic may be relayed station to station or station to the net.

8.2.13.1 Preliminary Call

When deemed necessary by NCS, transmitting a message will be preceded with a Preliminary Call. The preliminary call informs a message will be sent, the precedence or USMTF message type, the transmission mode if different than the mode already in use, and establishes the receiving station is ready to receive the message. The preliminary call is done using the mode by which communications is already established between the two stations. Usually this will be by voice. The message is sent using the most effective approved transmission mode available to the stations. For instance, the preliminary call is in voice and the message is sent using M110A Serial. The following examples include a preliminary call and response.

8.2.13.2 Station to Station

a. Under most conditions the NCS determines who will receive the listed traffic and transmits to the listing station: AAR4XX SEND YOUR 1 R TO AAR4YY OUT (or in the case of multiple addressees: AAR4XX SEND YOUR 1R TO AAA4NC NORTH CAROLINA AND AAR4YY FLORIDA OUT).
b. The station(s) assigned to receive transmit(s) in assignment order: THIS IS AAA4NC ROGER, OVER; THIS IS AAR4YY ROGER, OVER
c. The sending station may immediately send the message or send as soon as heading is complete. T instructions are not mandatory in the sent message if the stations are in clear communication and have understood NCS concerning relay instructions.
d. The pro-sign B should be used between messages if more than one message is sent in book format.
e. At the end of transmission receiving station (or stations if multiple addressee) reply ROGER OUT (message number may or may not be included). If fills are needed the receiving station(s) ask for fills until there is a complete and accurate copy of the message then transmits ROGER OUT. No additional transmission(s) are needed regarding that message. NCS continues with net business.
f. In the event of a failure of the receiving station to receive after reasonable attempts, the RELAY THROUGH procedure is to be used.

g. Alternately, the full message procedure may be used when deemed necessary. The NCS directs station to station relay by transmitting, "(Station call sign) **THIS IS** (NCS Call Sign), **CALL** (Other Station Call Sign), **SEND** (message precedence), **OUT**".

AAR4ZB THIS IS AAR4NCS, CALL AAR4XZ SEND ROUTINE, OUT

The traffic exchange continues as follows:

- The station directed to send the traffic will make a Preliminary Call by transmitting, **"AAR4XZ THIS IS AAR4ZB, ROUTINE** (indicate the mode preferred if other than voice, for example "M110A ", etc.), **OVER"**.

  This is a Preliminary Call, and is used to ensure the receiving station is ready. A preliminary call is optional when Abbreviated Procedures are in effect.

- The station receiving the traffic immediately acknowledges that he is prepared to do so by transmitting "**AAR4ZB THIS IS AAR4XZ, SEND YOUR ROUTINE - OVER**."

- The station sending the traffic begins by transmitting the calling elements of the ACP 16 line format followed by the rest of the message, for example, "**THIS IS** (Station call sign), **MESSAGE**, (message precedence), **TIME** (date time group), (from addressee), (to addressee), (message text), **OVER**." If the sending station is sending more than one message to the designated station he transmits "**MORE TO FOLLOW, OVER**". See Chapter 9 for more details on the 16 line ACP format.

- The station directed to receive traffic acknowledges correct message receipt by transmitting:

  - For a single message: "**THIS IS** (Station call sign), **ROGER, OUT**"

  - For multiple messages the transmitting station sends "**MORE TO FOLLOW, OVER**" after each message prior to the final one; the receiving station transmits "**ROGER, OVER**" indicating that he is prepared to copy the next message.

- When receiving the last message from the sending station: "**THIS IS** (Station call sign), **ROGER, OUT**."

- **The use of this procedure is very time consuming but may be required under difficult conditions.**

8.2.13.3 Station to Net

Sending traffic to all net stations or to selected stations in the net roster.

When the NCS has traffic for the entire net or for selected stations, he calls the net as a whole or selected stations and sends the traffic using the following procedure:

- For all net stations: "(Net call sign), **THIS IS** (NCS call sign), **OVER**"

- For designated stations: "(Selected station call signs), **THIS IS** (NCS call sign), **OVER**"

- Each station in the net, or those called, responds according to their place in the net roster, indicating their readiness to copy by transmitting "**THIS IS** (Call sign of first station), **OVER**"..."**THIS IS** (Call sign of last station), **OVER**".

  These are Preliminary Calls, and are used to ensure the receiving stations are ready. A preliminary call is optional when Abbreviated Procedures are in effect.

- The NCS sends the traffic. If a Preliminary Call was used, it is not necessary to send the Net call sign (or Selected call signs). At the conclusion of the traffic, each station in turn will confirm receipt of the traffic or request repetitions as needed. For example, once the NCS completes message transmission:

  "(Net call sign, or selected call signs), **THIS IS AAR4NCS.**
  MESSAGE... (heading, text)...**BREAK, OVER"**

  "THIS IS AAR4BE, ROGER, OUT."
  "THIS IS AAR4TC, ROGER, OUT."
  "THIS IS AAA4AL, SAY AGAIN WORD AFTER PUBLICATION, OVER."

For stations other than the NCS sending traffic to the net the NCS directs that station to send their traffic to the net or selected stations as follows:

(Station call sign), **THIS IS** (NCS call sign). **SEND ROUTINE TO THE NET** (or to selected stations), **OUT**

Scenario #1: For messages requiring receipt acknowledgment:

- Each station in the net roster indicates in-turn their readiness to copy, skipping over the call sign of the station who is to transmit the message. (if a preliminary call is used)

- The sending station then transmits the message at a speed that allows all net members to physically copy the text.

- Once the message is transmitted the sending station uses the pro-word "**OVER**" and each station again in net roster order acknowledges receipt of the message or requests fills as needed.

It is important that all stations either copy the net roster at the beginning of the net or, if they checked in late, at a minimum record their position in the net roster by noting the station they follow as indicated by the NCS.

Scenario #2: For messages not requiring receipt acknowledgment the NCS may direct the sending station to send the message to the net and direct transmission at "**READING SPEED**". The sending station uses the pro-word "**DO NOT ANSWER**" to emphasize to the

net that no reply is required.

AAR4YY THIS IS AAR4NCS SEND ROUTINE TO THE NET, (or to selected stations), **OUT**

NET THIS IS AAR4YY, MESSAGE, NUMBER XX FOLLOWS AT READING SPEED. DO NOT ANSWER. ROUTINE. TIME...**BREAK** (message text)...**BREAK**. **OUT**

8.2.14 Correcting Messages During Transmission

When an operator makes an error while transmitting a message, the pro-word "**CORRECTION**" will be transmitted followed by the pro-word "**I SAY AGAIN**" followed by the last word, group, pro-word, or phrase correctly transmitted.

8.2.15 Repetitions

Receiving stations will request repetitions, known as "fills", when words are missed or are doubtful before they acknowledge receipt for a message. Avoid using the word "**REPEAT**", as its meaning in military communications is for artillery to fire again.

The pro-word "**SAY AGAIN**" used alone or in conjunction with "**ALL BEFORE** _____," "**ALL AFTER** _____," "(blank) **TO** (blank)," "**WORD BEFORE** _____," "**WORD AFTER** _____" will be used. In complying with requests for repetitions, the transmitting station will identify that portion which is being repeated. Examples:

"**THIS IS AAA4TC. I SAY AGAIN WORD AFTER** (blank), (say the missing word), **OVER**"

"**THIS IS AAA4TC. I SAY AGAIN** (blank) **TO** (blank), (say the first 'blank' followed by all text to the last 'blank' word received correctly), **OVER**"

8.2.16 Leaving/returning to a Net

During normal operations of either a Directed Net or a net placed in Free Status, you must request permission from the NCS in order to leave the net. If continued station operation is a safety concern, for example during dangerous weather conditions, members may close down their station at any time with or without permission. For non-emergency situations use the following procedure:

AAR4NCS THIS IS AAR4BE. REQUEST PERMISSION TO CLOSE DOWN, OVER

If approved the NCS replies:

AAR4BE THIS IS AAR4NCS. CLOSE DOWN, OUT

While it is not necessary for the NCS to inform the station of their closing time, the NCS may elect to do so.

When returning to a net, a check-in is again required. If there is traffic to be listed, the returning station reports as during the initial net check-in. The NCS will acknowledge your return, your traffic if applicable, and direct you to a position in the net roster. That position may be the same or different than your original position in the net roster.

8.2.17 Free Net

Once all net operations are concluded the net may be declared "free" for the remainder of the scheduled period. The NCS remains responsible for proper net operation, circuit discipline and for closing the net at the correct time.

The NCS declares the net to be in free status by transmitting,

(Net call sign), **THIS IS** (NCS call sign). **THIS IS A FREE NET. OUT**

Net stations may contact each other during this period without requesting permission from the NCS. During these contacts, additional information may be exchanged, signals evaluated and compared, technical operations conducted, and other authorized brief exchanges may take place.

The procedure for contacting another station initially is to use the full call procedure as follows: "(Station call sign) **THIS IS** (Station call sign), **OVER**." The station called responds "(Station call sign) **THIS IS** (Station call sign), **OVER**." Once communication is established stations should discontinue using call signs until their contact is completed.

8.2.18 End of Scheduled Net Activity / Net Closing

Net Activities are scheduled for a set period of time. Army MARS nets do not run continuously. At the end of the set period of net time, the net is closed and the frequency reverts to a free status.

As long as the NCS maintains the net in either a “directed” or “free” status, members are obligated to remain in the net. Stations will normally close down with the NCS using the process described in section 8.2.16 “Leaving/returning to a Net”. Once the NCS closes down, stations are relieved of this responsibility. Stations may also close prior to the NCS closing the net by asking permission of the NCS to “Close Station.”

In the case of a net that is not continuous running, it shall be closed down at the appropriate time using the Net Closing technique described below. The Net Closing signals all stations that the net is over and there is no further net activity. Nets are closed by the NCS transmitting:

(Net call sign) **THIS IS** (NCS call sign) **CLOSE DOWN**, **OUT**

Note: ACP-125 uses the words **CLOSE DOWN NOW** while common US practice is to say **CLOSE DOWN**. Either method is acceptable.

When band conditions are difficult, the NCS may direct the ANCS to make a net closing broadcast prior to the NCS making the declaration, “Close Down.”

Optionally, The NCS may desire all stations respond to the direction to close down. This is important when there is a need for accountability of personnel; to be certain all stations have the message the net is closed. In this case, the NCS transmits, "(Net call sign) **THIS IS** (NCS call sign) **CLOSE DOWN**, **OVER**". Because a call to the net was made with the proword **OVER**, all stations in the net are required to respond in net order. Example: “**THIS IS** (Station Call sign), **ROGER**, **OUT**".

MARS stations are encouraged to practice closing networks using both methods.

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8.3 ASSESSMENT

Answer these questions and submit your answers to your Training Officer or mentor.

1. The three primary pro-words used in repetitions are?
2. The pro-word to direct artillery to fire another volley is?
3. When making a signal report, “FIVE BY FIVE” is an accepted signal report. (TRUE/FALSE)
4. You need to leave a net before the scheduled closing time of the net. What do you do?
5. During a Free Net, stations may contact each other without going through the NCS. (TRUE/FALSE)
6. When checking into a net, the abbreviated procedure is normally used. (TRUE/FALSE)
7. The net roster is maintained by the NCS. What information does the NCS provide a station that is checking into a net that has already been operating for some time?

At this time you should be working on the tasks in Chapter 10 of this BTC with you training officer or mentor. If you haven’t already, you should be checking in and participating in nets.

Familiarize yourself with the NCS script in Annex 7.2A. Practice NCS and ANCS with a partner in person, on the telephone or VHF. Make arrangements with your training officer or mentor to schedule NCS and ANCS duties. This will take a little time and you are not expected to take NCS duties right now, so continue with the course while you practice, gain experience, and build your skill.

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9 MESSAGES

Message handling is the cornerstone of all MARS operations. Our responsibility is to effect reliable, secure, speedy communications.

On completion of this section, you will be able to:

- Draft a standard 16 line message for transmission by voice or data using voice, teletype and relay procedures.
- Determine appropriate ACP message format.
- Identify the lines in the message format.
- Appropriately apply precedence to various message types.
- Format a Date Time Group
- Identify three principal operating methods for transmitting messages.
- Send a message by voice mode.

9.1 MESSAGE SYSTEM

Internet based communication are a powerful tool. National planners expect any significant attack upon the United States will include a large scale denial of internet services. In this situation, internet based services would be unavailable.

Manual message procedures such as voice or point to point data compose a very important traffic relay system where a message entering the system may pass through several MARS stations before delivery to the addressee. These methods are still required to provide the greatest level of service in a diversity of unpredictable situations.

Messages are sent using three methods between stations. The method used is dependent on the circumstances.

- Voice. The simplest and often the quickest way to send short bits of information, particularly when in direct communications with the intended recipient. Data modems, terminals or computers are not required. MARS voice message procedures are defined by ACP-125.
- Teletype. Requires a data modem and terminal in addition to radio equipment, or computer with appropriate software and interface to radio equipment. Teletype is an effective way to send large amounts of information to other stations in a net. It can be used for relay, but is not the most effective means for relaying messages through several nodes. ACP-126 defines procedures for Teletype operation and message formatting.
- Relay. Similar to Teletype, however, message format is designed for relay operation through several nodes. Requires routing tables and a structured routing plan to be effective. Relay procedures and formatting is described in ACP-127.

For clarification, the term "teletype" is used in this course to describe the functional transmittal and receiving of text messages from one station to another, where station operators are present at each station and no automated functions occur. The specific digital mode used for transmittal may be any of the authorized modes, and is not limited to FSK (RTTY).

9.2 ACP MESSAGES

ACP 125, ACP 126, and ACP 127 define 16 line message formats used for transmittal over various types of circuits.

You should review these sections of the ACP before completing this chapter.

- Transmittal of voice messages is defined in ACP-125, chapter 5.
- Transmittal of teletype messages is defined in ACP-126, chapter 3 and 4.
- Transmittal of relay messages is defined in ACP-127 (G) and ACP-127 US SUPP-1(K).

These formats have several common elements.

9.2.1 Message Serial Number

Messages will have a serial number entered in the appropriate message format line for the message type being sent. Operators transmitting messages will assign their own unique, sequential serial numbers that, in conjunction with the date time group and call sign of transmitting station, uniquely identify the message for reference purposes.

In some cases, there will be the originators serial number, and the transmitting stations serial number.

Message serial numbers are sometimes not used when messages are transmitted by voice. For instance, messages that are tactical, operational or service in nature, such as transmitting the net roster, do not require a serial number.

Operators may restart the sequential numbering system at their discretion using a system that best supports their own logging and filing requirements (daily, monthly or annually for example). The purpose of the number sequence is to provide the sender with a consistent point of reference to help identify a specific message if it needs to be serviced or resent

9.2.2 Message Types

For the sake of simplicity, this course will describe only 4 message types. As an Army MARS station you will most often use the Plaindress and Informal message types.

- A Plaindress Message is one where the originator and addressee are indicated externally of the text in Plain Text, ie, not coded or not encrypted.

  A Plaindress message contains all the components (unless the call sign serves as the address) as shown in the basic message format and must always include the precedence and date time group.

- A Codress message is one where the originator and addressee(s) are included in the coded (encrypted) portion of the message. Transmission instructions are important for relay and delivery of this type of message.

- An Abbreviated Plaindress Message differs from the Plaindress message in that the Precedence, Date Time Group and Group Count is omitted. This format should be used when the originator and addressee are also the sending and receiving stations.

  The time of transmission is included in line 14 when the message is sent by voice.

- Informal Messages are tactical, operational and service messages commonly sent to stations operating on the same net. Informal Messages normally only consist of a call, a text and an ending (lines 2, 3, 12, and 15. The time of transmission is normally transmitted in line 14 when the message is sent by voice.

9.2.3 Addresses of Messages

The address component of the message may contain:

- Originator – on who's authority the message is sent
- Action Addressee(e) – those required by the originator to take necessary action
- Information Addressee – those considered by the originator to require the message for information.
- Exempted Addressees – whom the originator desires to exclude
- ZEN – Sent by other means

It is essential that the originator of the message limit the number of addressees to those who need to take action thereon and in the case of information addressees, to those for whom the information contained in the text is essential. Over addressing messages can lead to serious overloading of communication facilities.

9.2.4 Message Precedence

Message precedence categories are used to specify the relative order in which they are to be handled. On voice circuits or point-to-point digital communications between two stations, this sorting is done manually.

Military precedence categories in order of importance are "**FLASH**", "**IMMEDIATE**", "**PRIORITY**", and "**ROUTINE**".

- **Z** or "**FLASH**" messages are reserved for initial enemy contact messages or operational combat messages of extreme urgency. Brevity is mandatory.

  Messages of lower precedence will be interrupted on all circuits involved until handling of the FLASH message is completed.

  FLASH precedence will not be originated by MARS volunteers.

  The goal for delivery of a FLASH message is "as fast as humanly possible with an objective of less than 10 minutes.

- **O** or "**IMMEDIATE**" is the precedence reserved for very urgent messages relating to situations, which gravely affect the security of national/ allied forces or populace.

  If possible, messages of lower precedence will be interrupted on all circuits involved until

the handling of the IMMEDIATE message is completed.

IMMEDIATE precedence messages may be originated by MARS Volunteers for initial report of situations such as widespread civil disturbance, grave natural disasters such as earthquakes, severe floods or storms.

Delivery time objective is 30 minutes to 1 hour.

- **P** or "**PRIORITY**" is the precedence reserved for messages concerning the conduct of operations in progress and for other important and urgent matters when ROUTINE precedence will not suffice.

Messages are processed, transmitted and delivered in the order received and ahead of all messages of ROUTINE precedence. Routine messages that are in the process of being transmitted should not be interrupted, unless they are extremely long.

Delivery time objective is 1 to 6 hours.

- **R** or "**ROUTINE**" is the precedence used for all types of messages that are not of sufficient urgency to justify a higher precedence.

Examples:

Messages concerning normal operations, programs and projects

Messages concerning stabilized tactical or incident operations

Periodic or consolidated reports

Supply or equipment requisition and movement messages

Administrative, logistics and personnel matters

Routine message are processed, transmitted, and delivered in the order received and after all messages of higher precedence. Routine messages may be held for transmittal in bulk on scheduled circuits.

Delivery objective is 3 hours to the start of business on the next working day.

9.2.5 Drafting the Text

The need for brevity and clarity in message preparation cannot be over emphasized. To avoid misinterpretation and further explanatory messages, the message must state exactly what is meant and must not be vague or ambiguous. Consistent with this, all unnecessary words are to be eliminated. Commonly used conjunctions, prepositions and articles such as AND, BUT, FOR , IN, ON and THE are to be eliminated unless essential to the meaning.

9.2.6 USMTF

United States Message Text Format (USMTF) is a standardized set of character oriented message text formats used in support of C4I systems for the exchange of information. USMTF messages are both human readable and machine processable, and provide uniform reporting procedures to be used in all defense conditions.
The principal USMT formats used in Army MARS are:

- GENERAL ADMINISTRATIVE MESSAGE (GENADMIN) is used to pass administrative information. It is intended to allow reporting of information not yet accommodated by other USMTF message formats. For example, MARS participation reports.
- COMMUNICATIONS TRAFFIC SUMMARY (COMTRAFICSUM) provides a daily summary of message traffic handled. It includes the messages transmitted or received, by precedence, and the average station handling time.
- COMMUNICATIONS SPOT REPORT (COMSPOT) is a report that informs of any situation that may affect information flow, such as disruption of communications, movement of facilities or activation or deactivation of nets and circuits.
- ACKNOWLEDGE MESSAGE (ACKNLDG) Acknowledges receipt of a message. Transmittal of this message implies understanding of the received message.
- PERSONAL FOR MESSAGE (P4) is used to communicate general information intended for personal review by specific recipients.

9.2.7 Message Format

"Format Lines" are a sequential order for sending a message using a variety of transmission methods, both radio or wire. Not all format lines apply, and those lines that do not apply are simply omitted.

Parts	Components		Line	Elements
HEADING		PROCEDURE	1	Reserved for tape relay
			2	Call sign of station being called
			3	Station calling & station serial no.
			4	Transmission instructions (T, F, or G)
	Preamble		5	Precedence, date-time group & message instructions
		ADDRESS	6	Originator's prosign (FM), designation & office symbol
			7	Action Addressee's prosign (TO) & designation
			8	Information addressee's prosign info & designation
			9	Exempted addressee's prosign (XMT) & designation
	Prefix		10	Accounting symbol (DA) & group count (GR 23 or GRNC)
Separation			11	BT
Text	Textual		12	Internal instructions & subject matter
Separation			13	BT
ENDING		PROCEDURE	14	Confirmation (CFN) & time group when appropriate
			15	Operating signals (ZNB), filing time, & final instructions (B, AS, or C (IMI USE) with prosign F)
			16	Terminating prosign (K or AR)

Format lines 1 through 3 and line 16 are associated with the transmission beginning, calling of the receiving station, and transmission ending. They are not part of the actual message. These lines contain information required for transmission identification and handling of the message when relayed through automated equipment using tape relay procedures, or human operators using teletype or voice procedures.

Format lines 4 and 15 are instructions from the transmitting station to the receiving station. They are also not part of the message. Each transmitting station shall apply their own instructions to the receiving station, if applicable, or pass on appropriate instructions.

Lines 5 through 13 contain actual message information from the originator that is intended for the recipient.

Each line of text should not exceed 69 characters, including spaces.

9.3 MESSAGE SCHEMATIC

What follows is a schematic of the formatted sequence. This schematic is broken into different parts to help illustrate the function of each "format line"

The three columns display how the format is used for different message types. Both Teletype and Replay are text messages, but are formatted slightly differently based on the destination of the message. If the message is transmitted inside a single net, teletype format is simpler and more appropriate. If the message will be relayed across several networks, the Tape Relay format provides the necessary information for routing though many nodes or across networks.

Full schematics of voice and teletype messages are provided in ACP-125(f) page 5-4 ,ACP-126(c) page 1-7, and ACP-127(G) page B1 – B4.

<table>
<tr><th colspan="2">Format Line</th><th>Voice: Station to Station and nets.

Ref: ACP-125</th><th>Teletype: Station to Station, service messages, traffic inside a net.
Ref: ACP-126</th><th>Relay: Use where message will be relayed to a distant network.
Ref: ACP-127</th></tr>
<tr><td>1</td><td>Transmission Identification</td><td>None</td><td>5 spaces

2 Carriage Returns

Time in Zulu (if transmission time is not transmitted elsewhere)

ex: <CR><CR>1234Z

Alternatively, Use relay procedure.</td><td>Start of Message Indicator (VZCZC)

Channel Indicator (your abbreviated call sign)

Transmitting stations serial number

5 spaces

ex: VZCZC9TC001</td></tr>
<tr><td rowspan="2">2</td><td rowspan="2">Called Station</td><td colspan="2">Call Sign of station being called.

(May be combined on a single line with line 3)</td><td rowspan="2">Routing Indicator(s) of station(s) being called.

ex: UHEABCM</td></tr>
<tr><td>ex: DESERT EAGLE</td><td>ex: AAZ</td></tr>
<tr><td>3</td><td>Calling Station</td><td>Pro-word THIS IS

Call sign of the calling station

Pro-word MESSAGE.

Optionally, the Pro-word NUMBER followed by the Transmitting stations serial number:

ex: THIS IS AAR4AA MESSAGE NUMBER ONE</td><td>Pro-sign DE

Call sign of the calling station

The pro-sign NR

The transmitting stations serial number.

ex: DE AAA4AA NR 1</td><td>Pro-sign DE

Routing Indicator of the calling station.

ex: DE UHEADNC 015/2301 (date and time of release for transmission)</td></tr>
<tr><td>4</td><td>Instructions</td><td>Pro-words (Words Twice, Relay To, Do Not Answer, Read Back)

ex: RELAY TO AAA4GA</td><td>Pro-sign F, G or T

Operating signals.

ex: T AAA9O</td><td>Security Warning Operating Signal

Pro-sign T

Other operating signals.

ex:ZNR UUUUU</td></tr>
</table>

		If the called station is not the action addressee then relay instructions are necessary.		*Relay Instructions not necessary as these are inherent in the routing indicator.*
5	Precedence, Originator's Date Time Group, Instructions	Precedence Pro-word Date Time Group Time Zone Month Year. ex: **ROUTINE 271502 ZULU OCTOBER 2011**	Precedence Pro-sign Date Time Group Time Zone Suffix Month Year. ex: **R271502Z OCT 2011 Z signal as appropriate**	
6	Originator	Pro-word **FROM** The originators designation. ex: **FROM JOE MEMBER AAR4AA**	Pro-sign **FM** The originators designation. ex: **FM JOE MEMBER / AAR4AA**	Pro-sign **FM** The originators designation. ex: **FM ARMY MARS STATION AAR4XX** *Plain Language, Routing Indicator, Originator's Name, Call Sign, Address Group.*
		Originator is indicated by Plain Language, Originator's Name, Call Sign, Address Group. *If the originator is military, the service member's abbreviated rank will be included prior to the name.* *If the originator is a MARS member, the call sign, state or country may be used in lieu of a complete mailing address.* *If from an overseas location, the address will include the Army Post Office (APO) or Fleet Post Office (FPO) address.* *When originator and address are in communications with each other on the same circuit, the call in line 2 and 3 shall serve as the address. Format lines 6 and 7 are omitted.*		
7	Action Addressee(s)	Pro-word **TO** Action Addressee(s)'s designation. ex: **TO GRANT HAYS AAA9O**	Pro-sign **TO** Action Addressee(s)'s designation. ex: **TO GRANT HAYS / AAA9O**	Pro-sign **TO** Action Addressee(s)'s designation. ex: **TO UHWACM/GRANT HAYS** *Action Addressee is indicated by Routing Indicator, Plain language, Addressee's Name, Address Group or call sign.* *In the case of multiple address messages, when addresses are listed individually, each address designation shall be on a separate line and may be preceded by either the operating signal ZEN (meaning delivered by other means) or the RI of the station responsible for delivery*
		Action Addressee(s) is indicated by Plain Language, Addressee's Name, Address Group or call sign. *If the Action Addressee is military, the service member's abbreviated rank will be included prior to the name.* *If the Action Addressee is a MARS member, the call sign, state or country may be used in lieu of a complete mailing address.* *If from an overseas location, the address will include the Army Post Office (APO) or Fleet Post Office (FPO) address.* *When originator and addressee are in communications with each other on the same circuit, the call in line 2 and 3 shall serve as the address. Format lines 6 and 7 are omitted.*		
8	Information Addressee(s)	Pro-word **INFO** Information Addressee(s)'s designation. ex: **TO BILL JONES AAA4RD**	Pro-sign **INFO** Information Addressee(s)'s designation. ex: **TO BILL JONES / AAA4RD**	Pro-sign **INFO** Information Addressee(s)'s designation. ex: **TO UHEHZZ/BLAKE SHELTON**

<table>
<tr><td></td><td></td><td colspan="2">Info Addressee(s) is indicated by Plain Language, Addressee's Name, Address Group or call sign.

If the Info Addressee is military, the service member's abbreviated rank will be included prior to the name.

If the Info Addressee is a MARS member, the call sign, state or country may be used in lieu of a complete mailing address.

If from an overseas location, the address will include the Army Post Office (APO) or Fleet Post Office (FPO) address.</td><td>Info Addressee is indicated by Routing Indicator, Plain Language, Addressee's Name, Address Group or call sign. This line follows the same rules as format line 7

In the case of multiple address messages, when addresses are listed individually, each address designation shall be on a separate line and may be preceded by either the operating signal ZEN (meaning delivered by other means) or the RI of the station responsible for delivery.</td></tr>
<tr><td rowspan="2">9</td><td rowspan="2">Exempted</td><td>Pro-word EXEMPT

Designator of exempt addressees:

ex : EXEMPT JOHN SMITH AAM2ENJ NEW JERSEY</td><td colspan="2">Pro-sign XMT

Designator of exempt addressees

ex: XMT JOHN SMITH / AAM2ENJ</td></tr>
<tr><td colspan="3">Use only when a collective address designator is used in Line 7, and an indicated addressee of the collective address designator is exempt from the message.</td></tr>
<tr><td>10</td><td>Group Count</td><td>Pro-word GROUPS

Number of coded letter groups or words.

ex: GROUPS TWELVE

Radiotelephone messages are usually short and a group count is seldom used.</td><td colspan="2">Pro-sign GR

Number of coded letter groups.

Ex: GR 12

The group count prosing and group count shall be used only when the text consist of countable encrypted groups.</td></tr>
<tr><td>11</td><td>Separation</td><td>Pro-word BREAK

ex: BREAK

Normally omitted. Used only when confusion between the heading and text is likely</td><td colspan="2">Pro-sign BT

ex: BT</td></tr>
<tr><td>12</td><td>Message Text</td><td colspan="3">Message Text
Security Classification
Thoughts or ideas of originator.

USMTF or free text format.</td></tr>
<tr><td>13</td><td>Separation</td><td>Pro-word BREAK

ex: BREAK

Normally omitted. Used only when confusion between the text and ending is likely</td><td colspan="2">Pro-sign BT

ex: BT</td></tr>
<tr><td rowspan="2">14</td><td rowspan="2">Time Group</td><td>Pro-word TIME

Time and Zone.

ex: TIME 1502 ZULU</td><td>Time Group

ex 1502Z</td><td rowspan="2">Not used in tape relay.</td></tr>
<tr><td colspan="2">Used when no time group is transmitted in line 5. (Abbreviated Plaindress)</td></tr>
</table>

15	Final Instructions, Corrections	May contain Pro-words: **AUTHENTICATION IS, CORRECTION, I SAY AGAIN, MORE TO FOLLOW** etc. ex: **MORE TO FOLLOW**	Pro-sign **C** Other pro-signs, operating signals, plan language as required. For ACP-127 messages the message number goes on this line #234 *May contain date and time message was filed with the communications center, final instructions in the form of pro-signs* **B***;* **AS** *and station designation(s).*	
16	End of Message functions	Pro-words **OVER** or **OUT** ex: **OVER** *Use pro-word* **OUT** *in conjunction with line 4 instruction* **DO NOT ANSWER**.	Pro-signs **K** or **AR** ex: **K** *Use pro-sign* **AR** *in conjunction with line 4 instruction* **F** *If* **ZCZC** *is sent in line1 then use* **NNNN** *instead of* **K** *or* **AR**.	2CR 8LF 4N's ex: **NNNN** *Turns off printers or activates save to file functions.*

If this format seems confusing, consider it was designed to ensure delivery and receipt of messages through a wide variety of methods with great flexibility of instructions. Note lines that are not necessary are not used. A very simple form of this message is demonstrated: Only format Lines 3, 5, 6, 7, 11, 12 and 13 are used.

DE AAR4TC NR99
R 010001Z APR 2015
FM ME
TO YOU
BT
Good Luck with your training.
BT

9.4 PRINCIPAL OPERATING METHODS FOR TRANSMITTING MESSAGES

There are three principal operating methods available for relaying messages from one station to another--receipt, broadcast, and intercept.

(1) Receipt Method. The receipt method requires the receiving station to acknowledge receipt for each message to the transmitting station; thus there is certainty of reception.

(2) Broadcast Method. Message broadcasts made on specific frequencies at specified times are used to disseminate information to MARS members. For instance, sending information from the MARS headquarters to members can be done by broadcast from the HQ station.

(3) Intercept Method. Using the intercept method one transmitting station sends a message to a second station; the latter station obtains the necessary repetitions to ensure correct reception and, if directed by the transmitting station or if prescribed by the operating agency, repeats back the message. Messages thus transmitted are actually intended for third stations that copy the message but do not use their transmitters directly in connection with the intercept transmission method.

The use of the intercept method may save considerable time. For example: During a net AAT4XX needs to forward a message. Two of the message information addressees are present on the net. The NCS directs AAT4XX to forward the message to AAA4TN3 for relay to Region Director AAA4RD. Once AAA4TN3 acknowledges receipt for the message the other two addressee stations present on the net also acknowledge receipt "by intercept". This relieves the relaying station of the burden of forwarding those info copies.

9.5 SPECIAL CONSIDERATIONS

9.5.1 Acknowledgements

An acknowledgement is a communications indicating the message to which it refers has been received and the purpose is understood by the addressee.

The instruction to **ACKNOWLEDGE** means Action Addresses are to acknowledge this message when understood. Silence if imposed is not to be broken.

The instruction to **ACKNOWLEDGE IMMEDEATLY** means Action Addresses are to acknowledge this message as soon as it is understood. Silence is to be broken if necessary.

Message acknowledgement will be made only:

- When specifically requested by the word(s) **ACKNOWLEDGE** or **ACKNOWLEDGE IMMEDEATLY** appearing as the last words in the text.
- When requested by a separate message
- The operating Signal **ZEV** is used in the message heading.

Requests to acknowledge a message shall apply to the action addressee only unless other wise stated.

The acknowledgement of a message when required shall be composes as follows:

- The word **YOUR** or the address designator actually used to represent the originator.
- The message reference (Date Time Group, serial number, etc)
- The word **ACKNOWLDEGED**

Example:

YOUR 121314 ZULU JANUARY TWO THOUSAND FIFTEEN ACKNOWLEDGED

An acknowledgement should not be confused with a reply, but a prompt reply to a message may save a subsequent request for acknowledgement.

9.5.2 Confirmation of Delivery

The operating signals **ZFF** and **ZDF** are used to obtain confirmation for message delivery only, not acknowledgement.

9.5.3 Exercise Communications

Messages sent relating to training exercises conducted in the interest of training and readiness are exercise messages, but are prepared and handled in the same way as normal traffic.

Exercise messages are identified by the word EXERCISE or abbreviation EXER/ followed by the exercise identification, which is a name or other designation assigned by the officer conducting the exercise. USMTF message forms provide for this line. The following example shows format line 12 text only.

```
BT
UNCLAS
EXER/VIGILANT GUARD//
MSGID/P4/ARMY MARS STATION AAR1XY//
GENTEXT/PERSONAL FOR/THIS IS AN EXAMPLE MESSAGE USING THE
USMTF"PERSONAL FOR" FORMAT, AND DEMONSTRATING THE EXERCISE NOTATION//
BT
```

In voice messages, the words **EXERCISE EXERCISE EXERCISE** shall be spoken at the beginning of format line 12, providing warning the information following is simulated content.

9.6 FACTORS THAT AFFECT MESSAGE RELAY

9.6.1 **Reliability:**

Reliability is the paramount factor in military communications; accuracy of transmission directly affects reliability. Error-correcting digital modes and proper enunciation enhance reliability and increase the speed of net operations. Operators will transmit messages exactly as written. Pro-signs, operating signals, and abbreviations will not be substituted for the text as written by the message originator, except for the substitution of abbreviations for months and states. Numerals in date time groups, message serial numbers, call signs, operating signals, and pro-signs will be written and transmitted as digits in digital transmissions and pronounced by voice. An operator who acknowledges receipt of a message is responsible for the further relay or delivery of that message, to include copies provided to information addressees. Any long delay (over 72 hours) or non-delivery will be reported to the originator by a service message.

9.6.2 **Speed of Transmission:**

Speed of transmission is achieved by accurate transmission and by adherence to procedures. Operators will transmit only as fast as the receiving operator can accurately record the message. Your ability to transmit voice messages directly impacts the other operator's ability to receive traffic under poor conditions. Remember that any repetition required most likely slows receipt of the message more than if the message had originally been sent more slowly.

TIP: To pace your delivery, write your message as you deliver it verbally… Use a pencil, pen, a stylus, or even your finger.

9.7 OTHER AGENCY MESSAGE REFILE PROCEDURES

Message refile is the reprocessing of messages into the appropriate format for transfer to or from another system or mode of communications.

Messages received for relay from other emergency support agencies, the ICS-213 General Message Form, for example, are formatted differently than the military's 16-line message outline. These messages can be transmitted properly via MARS by encapsulating the agency message between the two breaks for text (BT) within a standard ACP formatted message. See Operations Annex 8.7. Note, when encapsulating a message in this way, the originator and addressees are not listed in format lines 6, 7, 8 and 9 and the message is sent without action addressees. It is important to note in this case MARS is not servicing the addressees. Rather, we are delivering the message from one communication center to another. This technique preserves the original message content and meets the requirements of ACP message formatting.

9.8 ASSESSMENT

Answer these questions and submit your answers to your Training Officer or mentor.

1. The Date Time Group of 122012Z Oct 2015 is what calendar day, and what time?

2. A message is sent from one station to another. A third station is able to copy the message by overhearing the transmission of the first two. This operating method is known as?

3. The speed a voice message is transmitted is based on what factor?

4. Sending a message to a several recipients all at once, such as "ALL REGION 4 ARMY MARS" uses which operating method of transmission?

5. What is the purpose of line 16 in the message format.

6. The Receiving Station must acknowledge each message received to the transmitting station. Which Principal Operating Method of message transmission is this?

Annex 1.3B has an example Participation Report message. Your State / Region OPLAN has other example messages. Draft and send practice messages to your mentor for review and discussion. Include a Participation Report and a COMSPOT message in this practice.

From this point on, you should be submitting participation reports for each month.

Continue working with your Training Officer or mentor on the tasks in Chapter 10.

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10. PRACTICAL EXERCISES (INDIVIDUAL MEMBERS)

Member:_____ Call-sign: _____

Mentor: _____ Call-Sign: _____

Task	Date Completed	Evaluators/ Mentor's Initials	T.O. received documentation
1. Complete BTC assessments 1-9. Send documentation to T.O.			
2. Participate in 10 hours of State/Region nets: a. Complete logs for each net. b. List and ID call signs as to member/staff.			
3. Participate in a station to station exchange. Provide documentation to Training Officer.			
4. Act as Alternate NCS: a. Request additional check-ins b. Direct traffic relays c. Poll Net for Information d. Send documentation (date, time, personal evaluation) to your State Training Officer.			
5. Act as NCS and receive evaluation*: a. Open net correctly and on time b. Acknowledging station check-ins c. Appoint an ANCS d. Direct the relaying of traffic e. Conduct official MARS business as appropriate f. Poll Net for Information g. Declare net free as appropriate h. Close net on time			
6. Receive a message by voice. Provide documentation to State Training Officer.			
7. Prepare and send a message using an authorized data mode : Send documentation (date, time, personal evaluation) to your State Training Officer			
8. Prepare and transmit your monthly participation report by voice on a scheduled net: Send copy to T.O. with net's DTG, recipient, and personal evaluation of your performance.			
9. Compete ICS/NIMS course			
ICS-100, ICS-200 (copy certificate to T.O. within 1 year)			
RESERVED			

*Evaluator designated by SMD

Approved by_____

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