



*AIR FORCE MARS NATIONAL TRAINING MANUAL*  
*21 APR 2016*  
*Revision A*

*MILITARY AUXILIARY RADIO SYSTEM (MARS)*  
*TRAINING*

**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

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This Air Force MARS National Training Manual sets the training expectations for all members of AFMARS. It is to be used in conjunction with the AFMARS Messaging Manual and Annex, and the AFMARS Operating Instruction.

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**“AIR FORCE MARS IS TRAINING**

**BECAUSE OUR ADVERSARIES ARE NOT WAITING FOR US TO BE READY.”**



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## 1.0 PREFACE

### To: All USAF MARS Members

This revision of the National Training Manual reflects significant changes in Air Force MARS since the previous revision. Air Force MARS (AFMARS) has been directed to focus on mission essential tasks that were not previously a significant part of AFMARS operations. We have also begun operating jointly with Army MARS and DoD units in a more fully integrated way.

These changes have caused a re-examination of our AFMARS training to incorporate more sections of the Allied Communications Procedures (ACPs) into our training materials. Consequently, our training documents are no longer focused on initial training of new members (who will no longer be known as “Slant Tangos” because of changes in the call sign scheme). This *National Training Manual* and the associated *AFMARS Messaging Manual* and the *AFMARS Messaging Manual Annex I* are important to all AFMARS members.

Changes elaborated in this Manual to more closely follow the ACPs include the following:

- Using abbreviated procedure to check into nets as well as in conducting communications,
- Using abbreviated call signs,
- Eliminating call signs after communications are established, and
- An expanded list of prowords compared with earlier versions of this Manual.

Another change in the Manual is the addition of a National Training Plan that describes our Training goals and philosophy and roles for all members. The Plan also describes our Mission Essential Tasks List (METL) so we all share a common set of top priorities. The Plan also establishes for the first time a national standard list of performance criteria for determining when initial training is complete.

Other new features include a “New Member Quick Start Guide,” to assist new members to get on the nets while studying the more detailed materials in the manuals, and a new emphasis on protection of personally identifiable information (PII) in all of our communications.

Since the previous revision of this National Training Manual, the *Air Force MARS Operating Instruction (MOI)* has also changed. Those changes are reflected in this Manual.

Additionally, the subjects formerly covered in a single National Training Manual have been divided into three associated documents; (1) *National Training Manual*, (2) the *AFMARS Messaging Manual*, and (3) the *AFMARS Messaging Manual Annex I*. This change reflects the significant expansion of our documentation related to drafting, sending and receiving messages, the use of encryption and the use of U. S. Message Text Formats (USMTF).

The amount of documentation related to messaging was so extensive it would have made this Manual overwhelming if it were incorporated here. Furthermore, while some subjects covered in this Manual change with some regularity, the ACPs do not. Thus, separating the *AFMARS Messaging Manual* and the *Annex* will mean a smaller *National Training Manual* to be updated and distributed when necessary, while the *Messaging Manual* and *Annex* will likely remain stable.

There is also considerable information added to this Manual related to the protection of information we handle, as well as a new, annual on-line training requirement on that subject.

I hope that this *National Training Manual* and the *AFMARS Messaging Manual* and *AFMARS Messaging Manual Annex I* will prove to be comprehensive and easy to use. I also hope that, when combined with the MOI and frequency lists, these documents will be all the references documents that most AFMARS members will need. However, for those who wish to read the source documents for a deeper understanding of the material, the following link will take you to the source for the latest versions of the ACP documents: <http://jcs.dtic.mil/j6/cceb/acps/>.

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OPR: Office of Primary Responsibility for this Manual is Tom Carrigan, AFMARS National Training Manager, AFN1T. Questions and/or comments are to be directed to [AFN1TM@afmarsne.org](mailto:AFN1TM@afmarsne.org).

This Manual has been authorized and approved by the Chief, Air Force MARS.

## 2.0 NEW MEMBER QUICK START GUIDE

If you are a new member of Air Force MARS, you are probably anxious to get started. This page is to help you to do so. This is not a complete training program nor is it a substitute for reading the rest of this Manual and the *AFMARS Messaging* Manual and Annex. You need to be familiar with those, too. For now, let's get you on the nets.

- Step 1. Find out from your Training Manager or your State MARS Director what times and on what frequencies your regional nets meet.
- Step 2. Tune in at net time and listen carefully to how other stations check in.
- Step 3. Start a log of some form to record your participation hours on the net and the time you spend reading the training materials.
- Step 4. After you have listened to a couple of nets and feel you know what is expected, check into the net using your call sign as follows:

First, have your station tuned BEFORE the net starts. DO NOT tune on the net frequency while the net is in progress.

Practice saying your call sign in phonetics a few times before you key up.

Listen carefully to how others check in. Do what they do or ask your trainer for clarification.

For example: Listen for the Net Control Station (NCS) to say "OUT." Then say: "THIS IS" [release your push-to-talk switch and listen for any other station. If none is heard, re-key and say] "[Your call sign in phonetics] OVER." For example if your call sign is AFT3TR, you would say:

"THIS IS" [Unkey and listen to ensure that you are not doubling. Then re-key and say] "ALPHA FOXTROT TANGO THREE TANGO ROMEO, OVER."

- Step 5. Anytime you hear something that isn't clear to you, make a note to learn about it either by reading about it in this *National Training Manual* or by asking your trainer.
- Step 6. Record your participation in your log.
- Step 7. Once you are checked into the net, stay attentive to the net activity. If things get quiet, someone might call you to welcome you to the net and offer to help. Also, if there are any messages being passed, pay close attention to the processes being followed. If you must leave the radio before the end of the net, wait for the NCS to say "OUT" Then say, "THIS IS THREE TANGO ROMEO, REQUEST CLOSE, OVER." The NCS will then allow you to close.

That is all you really need to do to get started.

As you work through this Manual, be sure to use the self-assessment questions in Attachment 4 in the back of the manual.

Good luck!

### 3.0 REFERENCES

Information in this Manual is derived from the following sources:

- a) ACP-121 (I) Allied Communications Publication “*Communications Instructions General*” (October, 2010)
- b) ACP-125 (F) Allied Communications Publication “*Communications Instructions Radiotelephone Procedures*” (September, 2001)
- c) ACP-126 (C) Allied Communications Publication “*Communications Instructions Teletypewriter (Teleprinter) Procedures*” (May, 1989)
- d) ACP-127 (G) Allied Communications Publication “*Communications Instructions Tape Relay Procedures*” (November, 1988)
- e) ACP-127 (G) U. S. Supp-1(K) supplement to ACP-127 (G) (November, 2007)
- f) ACP-131 (F) Allied Communications Publication “*Communications Instructions - Operating Signals*” (April, 2009)
- g) Message Nr. 014, Chief AFMARS, 082025 Sep 2014 (“*AFMARS Way Ahead*”)
- h) Message Nr. 014, Chief AFMARS, 132100Z Oct 2015 (rescinding joint MARS SOP)
- i) Message Nr. 001, Chief AFMARS, 151800Z Jan 2015 (authorizing abbreviated call signs)
- j) CJCSI 6241.04C “*Policy and Procedures for Management and Use of USMTF*” (20 APR 2012)
- k) Department of Defense Instruction (DODI) 4650-02 (23 DEC 2009)
- l) *Air Force MARS Operating Instruction* (MOI), 2016
- m) *Air Force MARS Messaging Manual*, (MMM)
- n) *Air Force MARS Messaging Manual Annex I*, (FOUO)

## 4.0 AIR FORCE MARS NATIONAL TRAINING PLAN

Training is what we do most in MARS. Without detracting from the important service provided by our various nets, most of the time, most of our members are (or should be) training.

Training is a group activity, which is best accomplished with others. We train to learn and perfect new skills as they are required, to refresh knowledge and skills to prevent them from being forgotten, and to help others practice for the same reasons. We are all training and we can all be trainers.

### 4.1 RESOURCES

The AFMARS Operating Instruction (MOI) gives the National Training Manager (AFN1T) the responsibility for developing a uniform Training program throughout the organization.

Region Training Managers (RTM) implement Training on the region level, which is consistent with the National Training documentation and incorporates additional features required by circumstances in the, subject to approval by the Region MARS Director (RMD).

Additional Training leaders can be designated at the State. Individual mentors also can be appointed by State MARS Directors (SMD) to assist individual members with their Training.

Training is also supported in specialized nets, including the Phone Patch Network, Mission Support Network and TRANSGLOBAL Network by designated trainers and mentors.

In addition to these trainers, members can benefit from the assistance available from Region Technical Services Managers, Digital Managers and others with experience and expertise related to technology, antennas, propagation and other subjects MARS members need to know.

Training is everybody's job, but with it comes the responsibility of doing it correctly. Training conducted incorrectly is worse than unhelpful; it creates confusion, poor morale and inefficiency. Those who are not willing to read or adopt current Training doctrine should refrain from training others.

Documentation for use in AFMARS training consists principally of four documents; this *National Training Manual*, the *AFMARS Messaging Manual* and the *AFMARS Messaging Manual Annex I*, and the *AFMARS Operating Instruction (MOI)*. Trainees and trainers are able to access and use other materials such as the ACPs, and other references. However, the four named documents are drafted, peer-reviewed and edited with the intention that those will be the only documents most AFMARS members will need for training.

### 4.2 TRAINING PRINCIPLES

The following principles direct all Air Force MARS Training:

- 1) All Training at all levels must be consistent with *AFMARS National Training Manual* and the *AFMARS Messaging Manual* and *Annex* (which are consistent with the ACPs), the *MOI* and directives from the Chief, USAF MARS (CAFM). Only in this way can we implement consistent, uniform procedures throughout Air Force MARS.

- 2) All Training shall primarily focus on Mission Essential Tasks (MET) with secondary emphasis on other subject areas.
- 3) All Training should be developed with due consideration to procedures used by Army MARS, Department of Defense (DoD) and other federal agencies with whom we communicate while also adhering to Principle 1 above. AFMARS members are expected to follow Army MARS procedures when operating on Army MARS frequencies, and *visa versa*. However, any differences in procedures must be overcome to accomplish the mission at hand.
- 4) Specialized Training for special circumstances – such as special net procedures required in Regions or nets with unique circumstances, and special procedures for the Phone Patch Network, Mission Support Network and TRANSGLOBAL Network – shall be documented and communicated by those doing the Training to the National Training Manager so that such specialized Training can be made part of a unified Training program.
- 5) All trainers at all levels will present Training in a supportive, positive, cooperative and encouraging manner consistent with member-retention in a volunteer organization such as AFMARS.
- 6) Trainers don't make policy. Air Force MARS policy comes from the ACPs, Chief's directives, and the MOI. The Chief AFMARS, Region MARS Directors and Net Managers should establish policy when the need arises. Trainers should not. However, the ACPs do provide for the application of common sense interpretation and all members should use common sense. (Refer to: ACP-125 (F) s. 101(b), ACP-126 (C) s. 102(b)).
- 7) Trainers and trainees will avoid on-air discussion of tactics, techniques and procedures (TTPs) related to topics that are For Official Use Only (FOUO), especially, but not only, information about encryption and USMTF, contained in the *AFMARS Messaging Manual Annex*.

### **4.3 MISSION ESSENTIAL TASKS (MET) TRAINING**

Training should focus first and foremost on Mission Essential Tasks. A Mission Essential Task (MET) is a fundamental, requisite task for the performance of the AFMARS assigned mission.

Mission Essential Tasks are expressed as the tasks themselves, the existing conditions when the tasks will be performed, and a performance measurement.

#### **4.3.1 Task Definition**

The MARS mission is to provide contingency communications to DoD and other federal agencies. The Mission Essential Tasks, therefore, are those tasks that are essential to the communication of information to, from, for the benefit of, or on behalf of, DoD or other federal entities when contingencies arise requiring reliance on the MARS system.

### 4.3.2 Condition Definition

The conditions that exist for MARS METs will be those contingencies where DoD entities need to communicate over long distances by HF radio and DoD's regular communications channels are not available (or not sufficient) for any reason. These conditions will presumably include a complete or partial denial of telephone, cellular, Internet and satellite communications. During such a contingency, AFMARS will be fully integrated with Army MARS and operators from other DoD and federal entities. Additionally, MARS communications will be impacted by variable HF radio propagation and, potentially, partial or total loss of commercial electrical power.

### 4.3.3 Performance Measure Definition

For each MET, a performance measure is described. In future development, performance measures may be more empirical so that numerical values can be assigned for certain levels of performance. For now, performance measures are subjective and can be stated as, "What conditions exist when we know we have done well?"

### 4.3.4 AFMARS Mission Essential Task List (METL)

1. **Task:** Draft, encrypt and send messages.

**Condition:** Partial or total denial of DoD regular communications channels as described above.

**Performance Measurement:** Messages drafted in proper form and sent accurately and expeditiously by approved modes while maintaining transmission and operational security.

2. **Task:** Receive, relay, decrypt and deliver messages.

**Condition:** Partial or total denial of DoD regular communications channels as described above.

**Performance Measurement:** Message accurately received, relayed and delivered expeditiously while maintaining transmission and operational security.

3. **Task:** Establish and maintain regional, national and global HF radio networks (nets) to support message handling.

**Conditions:** Variable High Frequency (HF) propagation, electric power disruption, denial of Internet and telephone.

**Performance Measurement:** Nets function efficiently while maintaining operational and transmission security.

## 4.4 INITIAL TRAINING STANDARDS

To complete initial Training, a new member shall:

1. Obtain training documents required by Region Training Manager including, at a minimum:  
The current *AFMARS Operating Instruction (MOI)*,

The current *AFMARS National Training Manual*,

The current *AFMARS Messaging Manual (MMM) and Annex*

2. Review Training documents.
3. Demonstrate on-air skills including, at a minimum, proper use of prowords, call signs, abbreviated call signs and appropriate net discipline.
4. Demonstrate ability to draft, encrypt and send messages using ACP-125 voice procedure, ACP-126 teletype procedure, and ACP-127 relay procedure, including at least one of the USMTF message formats listed in the MMM Annex.
5. Demonstrate ability to receive, relay, decrypt and deliver messages in voice and digital (M-110A) modes.
6. Demonstrate ability to establish and control a net to support message handling.
7. Demonstrate proper operation of an HF radio station within trainee's possession or control.
8. Complete the on-line DoD training related to (1) Identifying and Safeguarding Personally Identifiable Information (PII), and (2) Cyber Awareness Challenge, Federal version, and provide certificates of completion to your state trainer and State MARS Director (SMD). See MOI, Section 11.4
9. Successfully complete a 50-question, open-book, training review exercise prepared by your Region Training Manager by scoring at least 85%.

**Check your understanding by using the self-assessment questions in Attachment 4 at the back of this Manual.**

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## **5.0 INTRODUCTION TO AIR FORCE MARS**

### **5.1 *A BRIEF MARS HISTORY***

The current MARS program is a result of development and evolution. It has been different things at different times. The first volunteer Amateur Radio operators to serve the United States military formed the Army Amateur Radio System (AARS) in November 1925. That operation continued until the start of World War II when Amateur Radio operations were ordered suspended. The Army Amateur Radio System was reauthorized in 1946. The U.S. Army and U.S. Air Force formed the Military Amateur Radio System in 1948. It was later renamed to Military Affiliate Radio System (MARS). In 1962, the Navy and Marine Corps MARS program was started. In 2009, the Department of Defense changed the name to Military Auxiliary Radio System. In 2015, the Navy-Marine Corps branch was discontinued.

### **5.2 *MARS MISSION***

Per DoD Instruction 4650.02, it is Department of Defense (DoD) policy that MARS shall:

Provide contingency radio communications support to U. S. Government operations through the utilization of organized volunteer radio operators and operating facilities under the appropriate authorities, as directed by and coordinated within the DoD. MARS is to provide contingency radio communications support to civil authorities at all levels, in fulfillment of DoD responsibilities under DoD Directive 5111.13, see <http://www.dtic.mil/whs/directives/corres/pdf/511113p.pdf>. It is also to provide contingency radio communications support to the DoD Components.

Furthermore, MARS is to handle health, morale and welfare radio communications support to military members, civilian employees and contractors of DoD Components and civil agency employees and contractors, when in remote or isolated areas, in contingencies or whenever appropriate.

The present emphasis of the program is on providing communications to military, civil, and other disaster officials during periods of emergency, and providing them with information about the emergencies from within the affected area.

### **5.3 *GEOGRAPHIC ORGANIZATION***

For administration and communication purposes, AFMARS is organized by geographic units. A state is the smallest geographic unit. States are grouped into Regions. (Regions have been grouped into Divisions, but there will be organizational changes, which will remove the division layer.) Each member has a State MARS Director (SMD) who is his/her primary contact for administrative matters. There are 50 states, 10 regions (closely associated with Federal Emergency Management Agency (FEMA) regions and identical to Army MARS regions) as shown below:

**Table 5.3-1 USAF MARS Regions by State Comparing to FEMA Regions**

REGION	STATES IN MARS REGION	STATES IN FEMA REGION
1	CT, MA, ME, NH, RI, VT	CT, MA, ME, NH, RI, VT,
2	NJ, NY	NJ, NY, PR, USVI
3	DE, MD, DC, PA, VA, WV	DE, MD, DC, PA, VA, WV
4	AL, FL, GA, KY, MS, NC, SC, TN, PR, USVI	Same (except PR and USVI)
5	IL, IN, MI, MN, OH, WI	Same as MARS
6	AR, LA, NM, OK, TX	Same as MARS
7	IA, KS, MO, NE	Same as MARS
8	CO, MT, ND, SD, WY, UT	Same as MARS
9	AZ, CA, NV, HI, Guam, and Pacific Islands	Same as MARS
0	AK, ID, OR, WA	Same as MARS

NOTE: Regions are referred to by number.

#### **5.4 REGION NETS**

The AFMARS Frequency Matrix (available from your SMD) shows the authorized frequencies for AFMARS. Each Region has a set of frequencies assigned. In some cases, the frequencies are shared by adjacent Regions. Most regularly scheduled AFMARS nets are run on these frequencies.

Other nets such as the Phone Patch Network (PPN), Mission Support Network (MSN) and TRANSGLOBAL Network are run on other frequencies. Other frequencies in the matrix are set-aside for Automatic Link Establishment (ALE).

#### **5.5 ADMINISTRATIVE NETS**

State and Regional Admin nets are conducted on the Region frequencies for administrative purposes so members may have contact with their State MARS Directors and discuss any state or region administrative business. Traffic may be passed on the admin nets when all state business has been completed.

#### **5.6 AIR FORCE MARS PROGRAM ADMINISTRATION**

The Air Force MARS program is directed through the office of Chief AFMARS at Scott Air Force Base, IL.

MARS management is through the State MARS Directors (SMD) and Region MARS Director (RMD). The SMD and RMD are MARS members appointed by Chief USAF MARS to hold those positions. Each SMD and RMD appoints a staff of State and Region Officials who help with various activities.

In addition to the Region and State officials there are a few “National” officials who have duties, which are CONUS-wide.

## 5.7 *CALL SIGN ASSIGNMENT*

Each individual MARS member is assigned a personal call sign. For a new member in training, the call sign will begin with the letters “AFT.” After initial training is completed, the member will be given a new call sign that begins with the letters, “AFA.” In both cases, the prefix will be followed by the number of his home region, and a suffix of two letters. Example: AFA6AA.

MARS stations at military installations are provided with call signs that begin with “AGA.” Example: AGA#XX.

Some MARS official positions are assigned “billet call signs” which may be used by the official in that position. The syntax of billet call signs is explained in detail the MOI. A summary is shown below.

### 5.7.1 Partial List of Billet Call Signs and Titles

Here is a partial list of representative Official Call signs and titles. The following call signs follow a template usage where the “#” will be a single numeral indicating the MARS Region of residence, 0 through 9.

#### 5.7.1.1 National Billet Call Signs and Titles

The following table lists the billet call signs of national officials.

**Table 5.7-1 National Billet Call Signs**

CALL SIGN	BILLET TITLE
AFN#A	National Administrative Assistant (NAA)
AFN#G	National Director, TRANSGLOBAL HF Operations (NDTO)
AFD#H	Deputy Director, TRANSGLOBAL Network Operations (DDTNO)
AFD#D	Deputy Director, TRANSGLOBAL Digital Operations (DDTDO)
AFD#L	Deputy Director, Automatic Link Establishment (ALE) Operations (DDALEO)
AFD#R	Deputy Director, TRANSGLOBAL Radio Relay (DDTRRO)
AFN#E	National Emergency Coordinator (NEC)
AFD#E	Deputy National Emergency Coordinator (DNEC)
AFN#F	National Military Liaison (NML)
AFN#O	National Operations Officer (NOO)
AFN#I	National Public Information Officer (NPIO)
AFN#W	National Planning Coordinator (NPC)
AFN#P	National Phone Patch Network Manager (NPPNM)
AFD#P	Deputy National PPN Manager (DNPPNM)
AFN#N	National Records Manager (NRM)
AFN#T	National Training Manager (NTM)
AFD#T	Deputy National Training Manager (DNTM)

CALL SIGN	BILLET TITLE
AFN#S	National Mission Support Network Manager (NMSNM)
AFD#S	Deputy National Mission Support Network Manager (DNMSNM)
AFN#M	National Technical Services Manager (NTSM)
AFN#V	National VHF Coordinator (NVC)
AFN#X	National Exercise Coordinator (NXC)
AFD#X	Deputy National Exercise Coordinator (DNXC)

### 5.7.1.2 Region Billet Call Signs and Titles

The following table lists the billet call signs of Region officials.

**Table 5.7-2 Region Billet Call Signs**

CALL SIGN	BILLET TITLE
AFR#C	Region MARS Director (RMD)
AFD#C	Deputy Region MARS Director (DRMD)
AFR#D	Region Digital Networks Manager (RDM)
AFR#E	Region Emergency Coordinator (REC)
AFR#N	Region Records Manager (RRM)
AFR#X	Region Exercise Coordinator (RXC)
AFR#V	Region VHF Coordinator (RVC)
AFR#T	Region Training Manager (RTM)
AFR#M	Region Technical Services Manager (RTS)
AFR#H	Region Voice Network Manager (RVM)

### 5.7.1.3 State Billet Call Signs and Titles

State MARS Officials vary from the National and Region Billet calls. State call signs are differentiated by a 6-character call sign with the suffix being the USPS Postal abbreviation for the state (i.e., “FL” would be Florida). The following table lists the billet call signs of State officials.

**Table 5.7-3 State Billet Call Signs**

CALL SIGN	BILLET TITLE
AFS#<ss>	State MARS Director (SMD)
AFD#<ss>	Deputy State MARS Director (DSMD)
AFE#<ss>	State Emergency Coordinator (SEC)

NOTE: (<ss> is the 2-letter postal state abbreviation)

**Check your understanding by using the self-assessment questions in Attachment 4 at the back of this Manual.**

## **6.0 AIR FORCE MARS MEMBERSHIP**

### **6.1 INDIVIDUAL MEMBERSHIP REQUIREMENTS**

Individual MARS volunteers must:

- a) Be at least 18 year of age.
- b) Be citizens of the United States, or lawfully admitted to the United States for permanent residency under the provisions of Title 8, United States Code, Chapter 12 (as revised), and reside within the borders of the United States, its territories, or possessions. This applies to alien residents who are U.S. military members stationed overseas under an overseas military command's jurisdiction.
- c) Hold a valid Amateur Radio license issued by the Federal Communications Commission.
- d) Maintain a log of MARS activity.
- e) Maintain records of messages.
- f) Report participation (or non-participation).
- g) Own or have access to an HF station with voice and digital text capability as described in this Manual and in the MOI.

### **6.2 STATION REQUIREMENTS**

As noted in the MOI, there are certain station requirements that must be met. Your station must be capable of transmitting and receiving upper sideband (USB) on all MARS frequencies between 2 and 30 MHz. You need antennas for at least the frequencies used in your Division/Region.

#### **6.2.1 Digital (Text) Mode Requirement**

All\* MARS members, to be fully mission-capable, must be able to send and receive text messages on HF radio using MIL-STD 188-110A/B (called M110A) which is a mode generated by a computer connected to your radio. This mode uses special software that is not contained in other Amateur Radio sound card software and is not authorized for use on Amateur frequencies. We use it because it is compatible with military radios and has very good accuracy and speed. The *AFMARS Messaging Manual Annex* contains detailed information about obtaining and installing the software you will need. (\*This requirement is mandated for new members, see MOI, Section 2.3.4(c))

Secondary to M110A, we use MT-63, which is available in several Amateur Radio software suites including Fldigi, Digital Master 780, and others. A tertiary mode is Olivia, which is also contained in these software suites. Training should be concentrated on these modes.

### 6.2.2 Frequency Stability

Because we operate on military frequencies under the regulation of the National Telecommunications and Information Administration (NTIA), we must use radios, which maintain a frequency stability of +/- 20 Hz or better. Most modern HF transceivers with a high-stability Temperature Controlled Crystal Oscillator (TCXO) can achieve this. Most vacuum tube radios cannot.

### 6.2.3 Signal Clarity

On MARS frequencies, voice-operated transmission (VOX) is never used. Also, no extraneous sounds should be transmitted from your radio such as background room noise, "Roger Beeps," computer chimes, etc. Once your computer is connected to your radio, be sure that it is not transmitting any computer sounds, such as when e-mail arrives or when applications open or close.

### 6.2.4 Power Limits

On most MARS frequencies, the maximum output power permitted is 1,000 watts RMS. There is no minimum. However, to provide reliable communications, at least 100 watts should be used. Each MARS operator should strive to achieve the best possible signal. If you cannot be heard, there is not much you can contribute to the mission.

## 6.3 *E-MAIL*

All MARS members must be able to receive e-mail communications, as this is our primary means of distributing information, alerts, orders and other communications.

## 6.4 *MANDATORY ACTIONS*

As an AFMARS member you must:

- a) Complete initial training within 180 days of entry to MARS. Your trainer and SMD will determine when you have demonstrated sufficient proficiency with basic MARS skills to be considered finished with your initial training using criteria in the National Training Plan (Section 4 of this Manual). You must also successfully complete of a 50-question, open-book training review exercise.
- b) Comply with the *AFMARS Operating Instruction* (MOI).
- c) Satisfy AFMARS minimum participation requirements and report participation (or lack of participation) monthly as required by your State MARS Director or his/her designee in the reporting format required. For this purpose, you must maintain a log according to the requirements in MOI Section 3. A sample log is contained in Attachment 2.
- d) Notify the State MARS Director of any change(s) in your mail address, physical address, telephone number, e-mail address or Amateur Radio license status and any renewal of your Amateur Radio License.

**Check your understanding by using the self-assessment questions in Attachment 4 at the back of this Manual.**

## 7.0 GENERAL REQUIREMENTS FOR MILITARY COMMUNICATIONS

MARS operators must be Amateur Radio Operators but we must perform like military communicators. We operate on military frequencies to serve a military purpose. Our performance on the air should be identical to (or more correct than) military operators' performance.

Most MARS nets are managed using voice (radio-telephone) and message traffic sent on those nets is usually sent by text (radio-teletype). The procedures mandated by ACP documents related to text messaging are contained in the *AFMARS Messaging Manual*. The following procedures for proper voice operation are derived from ACP-125 (F).

### 7.1 TRANSMISSION SECURITY (TRANSEC)

Transmission Security is a title given to a variety of practices used to protect our transmissions from interception or analysis by potential enemies.

Other places, including ACP-125, use the term “communications security” (COMSEC). However that term has a specific meaning in USAF. So we avoid using it in AFMARS.

It is well established that MARS frequencies and activities are monitored by unknown hobbyists and others whose motives are unknown. Internet-linked radio receivers give those persons the ability to listen to our regional nets from anywhere in the world. Encryption is one obvious step to protect communications. But, there are other procedures we are expected to use to reduce the risk that our transmissions will be of unintended value to others.

#### 7.1.1 Protecting Frequency Designators from Disclosure

One way we try to protect our communications from interception is by the use of frequency designators. These are combinations of letters that stand for our radio channels. Members of the public are always trying to learn our frequencies. By referring to frequencies by designators, we can make that a bit more difficult, if we keep the meaning of the designators to ourselves.

There are many ways our frequency designators can be inadvertently disclosed. For example, we should never say something like “... **here on frequency ROMEO ALPHA,**” as this announces to anyone listening that the present frequency is “RA.” Also, do not announce that you will be training on frequency X-RAY CHARLIE in 10 minutes, and then start training on the same frequency. Just say, “... **on this frequency.**”

The idea is that we don't want the public to be able to associate a frequency designator with a numerical frequency.

Note that, when dealing with DoD and military operators, they will not have access to the AFMARS frequency matrix. Only in those situations, may changes of frequency be made with reference to the actual numerical frequency. But, it must be made without reference to the frequency designator.

Example:

**“Brass Hat, THIS IS AFA6ZZ, change frequency to 1 2 DECIMAL 3 4 5 megahertz for traffic from High Tower, OVER.”**

### 7.1.2 Call Signs

Our system of call signs is designed to obscure the identification of the stations using the call signs. To maintain that value of the system, call signs should not be associated with the names of individuals, nets and facilities on the air or on publicly accessible websites. Rosters should be carefully controlled.

Additionally, the use of call signs themselves should be minimized. So, once a MARS member has checked into a net, he/she should use his/her abbreviated call sign, unless conditions are such that the net control station directs stations to USE FULL CALL SIGNS, and he/she should use abbreviated procedure (See Section 8.2), unless directed to USE FULL PROCEDURE by the NCS. (Ref. b, sect. 606).

Also, once two stations have established communications, they should stop using call signs altogether for the duration of their exchange. (Ref. b., sect. 218(b)).

The goal is to make discovery of the source, and analysis of the content of the transmissions difficult.

### 7.1.3 Abbreviated Call Signs

Full call signs must be used when establishing communications (Ref. b, sect. 603) or when establishing a net or entering an existing net. Thereafter, abbreviated call signs should be used when communications conditions permit, except when a net control station requires full call signs. (Ref. b, sect. 606).

Individual Air Force MARS call signs are abbreviated by using the region number and the following two letters in phonetics.

Example: AFA1IR is abbreviated 1IR, pronounced **“ONE INDIA ROMEO.”**

Most billet call signs can be abbreviated using the last letter before the number, the number, and the letter following the number.

Example: AFN1T is abbreviated N1T, pronounced, **“NOVEMBER ONE TANGO.”**

AFR5C is abbreviated R5C, pronounced **“ROMEO FIVE CHARLIE.”**

State billets present a different situation. Those are abbreviated using the last letter of the prefix (S, D or E), followed by the two-letter state abbreviation. The Region number can be omitted because the state is indicated by the last two letters and the region can be inferred.

Example: AFS8MO is abbreviated SMO, pronounced **“SIERRA MIKE OSCAR.”**

#### 7.1.4 Routing Indicators (RI)

Routing indicators are discussed more fully in the *AFMARS Messaging Manual* and *Annex*. A Routing Indicator (RI) is a set of letters that stands for an approximate origin or destination of a message (e.g., UABCDEF). The meaning of an RI should be protected in the same way the meaning of a frequency designator or call sign should be protected. Transmission security is improved by keeping the location associated with an RI anonymous. So, on-air discussions that disclose the meaning of an RI should be avoided.

#### 7.1.5 Personally Identifiable Information (PII)

Personally Identifiable Information (PII) is any item of information that identifies an individual from among a group. The most obvious examples are name and address. But, social security numbers, e-mail addresses that contain parts of the person's name, telephone numbers, Amateur Radio Service call signs (which are searchable on the Internet), and other individual data are also examples of PII. There is strong DoD policy favoring the protection of PII. Whenever PII concerning any person is sent on a MARS frequency, it should be encrypted.

#### 7.1.6 Brevity

Keeping transmissions as short as possible also has TRANSEC value as it helps keep the air free. Silence is the highest form of TRANSEC. A listener tuning across the spectrum might tune right past a net if it were silent at the time.

Additionally, a free channel makes it easier for stations to list traffic or conduct other communications. For those reasons, voice messages should be pre-planned, brief and concise. Messages to be transcribed should be written down in advance of being transmitted by voice.

A MARS operator should not feel offended or slighted by brief replies to their messages. A terse, “**ROGER OUT**,” simply means, “I heard what you said, and I have concluded my transmission, no reply is expected.”

During lengthy voice transmissions, the push-to-talk switch should be released after each short phrase, at least every 20 seconds. This provides an opportunity for the transmitting operator to detect any interfering signals that occur during his/her transmission. It also provides other stations an opportunity to interrupt with higher precedence communications.

#### 7.1.7 Encrypted Message Volume

Maximizing the number of encrypted messages serves the interest of TRANSEC because, to the unauthorized listener, it buries critical messages within the “noise” of many non-critical messages. Therefore, as much as possible, message traffic -- whether routine or significant -- should be sent by encrypted text. Practice messages and routine administrative messages should be sent as often as possible and encrypted so that an unauthorized listener cannot infer anything about our level of activity from our quantity of encrypted message traffic.

**7.1.8 BEADWINDOW Procedure (Ref. b, Sect. 803)**

The BEADWINDOW procedure is a way to call attention to an inappropriate disclosure of information. The codeword “**BEADWINDOW**” stated by the NCS or other station in communications indicates that an inadvertent disclosure of information has just occurred. Stations involved in the communication should immediately stop the discussion and reflect on what may have been disclosed. No further discussion of either the subject matter, or any issue about whether the term BEADWINDOW was properly used, should occur on the air. The only authorized reply is “**ROGER, OUT.**”

Any further discussion of the subject should occur by telephone, e-mail, or encrypted communications. A number might be added after the term BEADWINDOW to more clearly define the concern. A full discussion of the BEADWINDOW procedure can be found in ACP-125(F) Section 803.

**7.2 RULES FOR RADIO DISCIPLINE (REF. B, SECT. 402)****ALWAYS:**

- 1) Use correct voice procedure.
- 2) Maintain constant listening watch while your station is on a net. Do not leave the net without informing the net control.
- 3) Ensure that you are accurately on the frequency in use.
- 4) Answer calls to your station promptly.
- 5) Listen carefully to the frequency before transmitting or tuning to ensure that no communications or net are in progress. When a net is in progress, you must be checked into the net before conducting any business at all, including the relay of other check-ins. You must obtain permission of net control before tuning on the net frequency.
- 6) Release the push-to-talk switch every few seconds during a long transmission to listen for other signals, and promptly at the end of your transmission.

**NEVER:**

- 1) Violate radio SILENCE.
- 2) Send FOUO or personally identifiable information (PII) unencrypted, if avoidable.
- 3) Make unnecessary transmissions or unduly long transmissions.
- 4) Engage in non-MARS-related communications or “chitchat.”
- 5) Disclose personally identifiable information (PII) or location or movement information about any MARS or DoD operator or installation.
- 6) Send information faster than it can be copied.
- 7) Show loss of patience or temper, or use improper language or otherwise bring discredit on MARS, or any member of MARS.

**7.3 SPEECH TECHNIQUE**

The intelligibility of voice transmission is increased by:

- 1) Keeping transmissions short, using short natural phrases; not individual words.
- 2) Speaking slightly slower and pronouncing words more deliberately than in everyday speech in a conversational tone and level.

**7.4 PHONETIC ALPHABET**

The use of standard phonetics for the pronunciation of letters in call signs and text aids accuracy and efficiency.

The following is the **only** phonetic alphabet to be used in MARS:

**Table 7.4-1 Phonetic Alphabet**

A	ALPHA	J	JULIET	R	ROMEO
B	BRAVO	K	KILO	S	SIERRA
C	CHARLIE	L	LIMA	T	TANGO
D	DELTA	M	MIKE	U	UNIFORM
E	ECHO	N	NOVEMBER	V	VICTOR
F	FOXTROT	O	OSCAR	W	WHISKEY
G	GOLF	P	PAPA	X	X-RAY
H	HOTEL	Q	QUEBEC (Pronounced KEH-BECK)	Y	YANKEE
I	INDIA			Z	ZULU

**7.5 PRONUNCIATION OF FIGURES**

The clear pronunciation of numerals is also essential to professional-grade voice radio communications. The following pronunciations are mandated by ACP-125 (F):

**Table 7.5-1 Pronunciation of Figures**

1	<b>WUN</b>	6	<b>SIX</b>
2	<b>TOO</b>	7	<b>SEV-EN</b>
3	<b>TREE *</b>	8	<b>AIT</b>
4	<b>FOW-ER *</b>	9	<b>NIN-ER *</b>
5	<b>FIFE *</b>	0	<b>ZE-RO</b>

\* Note the non-standard pronunciations for intelligibility on radio.

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**Additional information about transmission of text is contained in the MARS Messaging Manual.**

## **7.6 ZULU TIME**

All references to time on HF nets shall be in Coordinated Universal Time, also known as Greenwich Mean Time (GMT), which is known as the Z (ZULU) Time Zone, in the 24-hour format and stated as H H M M ZULU. Example: “**1 4 3 5 ZULU.**”

## **7.7 PRIORITIES FOR COMMUNICATIONS**

Critical communications have competing priorities including accuracy, security, speed, and efficiency, among others. In our service as MARS operators, we must always keep our priorities in the correct order.

The highest priority is ACCURACY. What we transmit must be ACCURATE. If the message is not accurately relayed and delivered, the other priorities don't matter.

The next higher priority is SECURITY. While sending our communications, we must not compromise the security of our communications or the identity, location or movements of our DoD users.

While taking those priorities into account, we should strive to move messages with as much SPEED as possible and according to their indicated precedence.

### **ACCURACY, SECURITY, SPEED**

## **7.8 OPERATIONS SECURITY (OPSEC)**

We must always assume that our communications are being monitored, including radio, 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 (TTPs), or other data related to current operations could provide exploitable information to potential enemies. When supporting military units, MARS members may become aware of this information.

MARS members must always practice continuous OPSEC as follows:

- MARS member communications and traffic relayed should not include information regarding past, present or future military unit deployments, movements or operations (except when handling messages originated by military units). 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.

- Minimize the exposure of TTPs. 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.
- 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. 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.

### 7.8.1 ANNUAL ON-LINE TRAINING REQUIREMENT

The AFMARS Operation Instruction provides: “All AFMARS members shall familiarize themselves with the requirements for protecting [Controlled Unclassified Information] CUI .... AFMARS members shall also complete the following training courses annually and forward the completion certificate to your State Training Officer.”

- a. Identifying and Safeguarding Personally Identifiable Information (PII) Version 2.0 or latest, available via: <http://iatraining.disa.mil/eta/piiv2/launchPage.htm>
- b. Cyber Awareness Challenge, Federal version, available via: <http://iatraining.disa.mil/eta/cyberchallenge/launchpage.htm>

“(NOTE: *If MARS members complete the Cyber Awareness Challenge DoD version as part of official or business duties, they may use that certificate to satisfy this requirement.*)”

### 7.9 TEST TRANSMISSIONS

Test transmissions on military frequencies must not exceed 10 seconds, and must be identified at the end, followed by the proword OUT. (Ref. b, Sect. 601(f))

Example:

“1, 2, 3, 4, 5, -- A F A 6 J J -- OUT.”

Test and tuning transmission must never be made on a net frequency while a net is active.

**Check your understanding by using the self-assessment questions in Attachment 4 at the back of this Manual.**

## 8.0 GENERAL OPERATING PROCEDURES

### 8.1 INTRODUCTION

Air Force MARS frequencies are available for use 24 hours per day for MARS business. DoD personnel often monitor the MARS frequencies. The frequencies are also known to be monitored by unauthorized listeners who have unknown motives but should be considered hostile.

If a frequency is not otherwise in use, one or two MARS stations may use it for MARS business such as training, message handling or testing and adjustment of station equipment. MARS members should restrict their operations to their own region or division frequencies unless authorization to use other frequencies has been obtained from their SMD or RMD.

MARS frequencies are always for military use first. MARS use is always secondary to military use. In the event that unfamiliar or tactical call signs are heard on or near a MARS frequency (e.g., “Copperhead,” “Cold Chisel,” “Viper 26,” “Ram Rod,” “W6K,” etc.), their authenticity as military stations should be presumed. Any concerns about authenticity should be reported to the Net Manager by e-mail or telephone. MARS members should stand by to offer any assistance that may be requested. Otherwise, the MARS stations should not interfere with the military use of the frequencies.

MARS on-air activity should always be strictly related to the MARS mission and training and should be conducted as if the frequencies were being monitored by Air Force or DoD personnel, as they might be, in fact. Even if no scheduled MARS activity is happening, MARS frequencies are not for chitchat as would be typical on Amateur Radio frequencies.

### 8.2 ESTABLISHING COMMUNICATIONS BETWEEN STATIONS

#### 8.2.1 Full Procedure

Full procedure is the procedure of using the call sign of the station you are calling followed by the proword THIS IS followed by your own call sign.

Example:

“AFA4XX THIS IS AFA4YY, OVER.”

Full procedure can be used with phonetics, plain language call signs or abbreviated call signs, as the circumstances permit. Full procedure is always used when establishing contact with another station (except when checking into a net, which is actually answering a call, rather than establishing communications).

#### 8.2.2 Abbreviated Procedure

Abbreviated procedure is that procedure in which a transmission begins with the proword THIS IS followed by the call sign of the station transmitting.

When checking into a net (unless the NCS requires full procedure) stations would simply say:

**“THIS IS ... [unkey and listen, then transmit] ... [full call sign in phonetics], OVER.”**

Note that the use of abbreviated procedure to check into a net is a new practice for many of us. Nevertheless, it is prescribed by the ACPs and is the practice we will follow.

Abbreviated procedure [without the unkey/listen step] should also be used:

1) when answering a call from another station,

Example:

AFA2CC:	<b>“TWO BRAVO BRAVO THIS IS TWO CHARLIE CHARLIE, OVER.”</b> <i>(Full procedure to establish communications).</i>
AFA2BB:	<b>“THIS IS TWO BRAVO BRAVO, OVER.”</b> <i>(Abbreviated procedure to answer);</i>
...	

and

2) when calling the net control station after having checked into the net (unless the NCS has required the use of full procedure).

Example 1:

AFA3DD:	<b>“THREE DELTA DELTA, ... OVER.”</b> <i>(Abbreviated procedure, omitting the proword THIS IS)</i>
NCS:	<b>“THREE DELTA DELTA, THIS IS [NCS call sign], OVER.”</b>

Since AFA3DD needs the permission of the NCS before calling anyone else, it is understood that he is calling the NCS.

Example 2:

If the net is otherwise quiet and the NCS is likely to hear AFA3DD's first transmission easily, AFA3DD can state his/her request along with the initial call to the NCS.

AFA3DD:	<b>“THREE DELTA DELTA, REQUEST [to] CLOSE, [station] OVER.”</b>
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or

AFA3DD:	<b>“THREE DELTA DELTA, REQUEST INFORMAL WITH THREE ALPHA ALPHA OVER.”</b>
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By including the request in the first transmission, fewer transmissions are needed for the full exchange and the overall communication is shorter.

Note that when we identify our transmissions, it is always at the beginning of the transmission; never at the end (except for test transmissions).

Unless directed by the Net Control Station to USE FULL PROCEDURE, stations shall use abbreviated procedure to answer a call.

### 8.3 *OMITTING CALL SIGNS*

Once two stations have established communications with each other, they may stop using call signs all together, unless confusion will result. So, if AFA2CC, asked for and received permission from the NCS to call AFA2BB, it would go like this:

AFA2CC:	<b>“TWO BRAVO BRAVO, THIS IS TWO CHRLIE CHARLIE, OVER.”</b> <i>(Full procedure to establish communications)</i>
AFA2BB:	<b>“TWO BRAVO BRAVO, OVER.”</b> <i>(Abbreviated procedure to answer)</i>
AFA2CC:	<b>“WILL YOU BE ON THE NET TOMORROW? OVER.”</b> <i>(Communications established call signs omitted)</i>
AFA2BB:	<b>“YES, I EXPECT TO BE, OVER.”</b> <i>(call signs omitted)</i>
AFA2CC:	<b>“I WILL HAVE A MESSAGE FOR YOU THEN, OVER.”</b> <i>(call signs omitted)</i>
AFA2BB:	<b>“ROGER, OUT.”</b> <i>(call signs omitted)</i>

In the event that communications last more than about five minutes, the stations should announce their call signs at the beginning of a transmission about once every five minutes. Stations are cautioned, however, that except in unusual situations, communications should not last five minutes.

NOTE: The omission of call signs is a new feature of our training doctrine. Some stations might not be familiar with it, yet. Nevertheless, this is in keeping with ACP-125 procedure and shall be implemented. (See Ref. b, sect. 606; Ref. (i))

### 8.4 *FORMING A NET*

Three or more stations in communication constitute a net. One station must serve as net control.

Once a station assumes control, the net is a directed net unless it is declared “FREE” by the Net Control Station (NCS). Even in a free net, the NCS remains responsible for the net discipline and must interrupt any improper activity on the frequency.

Example of AFA4EE assuming control:

AFA4EE: <b>“I AM ASSUMING CONTROL, OUT.”</b>
--

## 8.5 *DIRECTED NET*

A directed net is one in which any station must have the permission of the NCS to contact another station. A net control station establishes a net by saying, “**THIS IS A DIRECTED NET, OVER.**” This invites other stations to check in, because the proword OVER is used. The proword OVER is an invitation to transmit. If the NCS is not requesting check-ins, he/she would use the proword OUT.

The prowords “**THIS IS A DIRECTED NET**” convey the meaning that the net is directed and the station speaking is the net control. This phrase would be used when a net is being established, or when an NCS is changing a free net to a directed net. It can also be a discreet way for an NCS to interrupt an informal communication between stations that has strayed off of MARS business or lasted too long.

In the case of a scheduled net where the scheduled NCS is known (e.g., AFA5FF), the NCS can establish the net by saying,

“ <i>[Net Designator, Net Designator]</i> <b>THIS IS AFA5FF (phonetics), THIS IS A DIRECTED NET...OVER.</b> ”
---

(NOTE: The scheduled NCS identifies the Net being called by using the Net Designator twice. The NCS does not say “assuming control” because he has already been designated as NCS for the net being called. See Chapter 10 for detail on net operations.)

## 8.6 *FREE NET*

A free net is one in which any station may call any other station without the permission of the NCS. Even in a free net, however, only MARS business may be discussed. The sole purpose for a free declaration is to allow more expedient communications after all traffic has been passed.

Where communications conditions are not good and stations have difficulty hearing other stations, a free net can quickly become chaotic with multiple conversations taking place. Especially where there are large numbers of stations on a frequency, a free net should not be declared when conditions are poor.

## 8.7 *“ROUND TABLE” DISCUSSIONS PROHIBITED*

Round table discussions -- where three or more stations direct transmissions to each other freely at any time, or in sequence -- are not allowed on the MARS frequencies, even in a free net. Every communication must be directed by one station to one recipient or group of recipients at a time. That communications must be terminated with the proword OUT before a different communication is directed to someone else.

## 8.8 *RESERVED*

## 8.9 *RESERVED*

## 8.10 COMMON PROWORDS

The most obvious element of MARS procedure that distinguishes us from other Amateur Radio Operators and helps to make our transmissions compatible with military operators is our strict and proper use of prescribed procedural words (“prowords”). Prowords help us to be brief and yet clear in our meaning.

### 8.10.1 OVER and OUT

The most common prowords are “OVER” and “OUT.”

**Every voice transmission on a MARS frequency must end with either “OVER” or “OUT” but, never both. Every text message in a digital mode must end with a corresponding signal.**

OVER means, “I have finished my transmission, go ahead and transmit.” It indicates that a reply is expected and necessary. NOTE that we do **not** say, “Go ahead” as an invitation to transmit. The equivalent teletype signal is “K”.

OUT means, “I have concluded my transmission, no reply is expected.” When one station says OUT, that is the end of the exchange. The other station should say nothing. If that other station has more to say, he must re-establish contact by using the method explained in Section 8.2. Unless the context makes it clear when the communications are concluded, the station that started the communication should usually be the one to say OUT. The equivalent teletype signal is “AR”, which can be omitted following the End-of-Message signal, “NNNN”.

More common prowords are described below. A complete list of approved prowords is contained in the Attachment 3.

### 8.10.2 ROGER

The proword “ROGER” means, “I received the information transmitted by you,” without indicating approval or disapproval, agreement or disagreement.

Many stations use ROGER to mean, “yes.” This is not an accurate use of ROGER.

Many operators trained elsewhere use other phrases for the same purpose as ROGER. These include, “That's a good copy,” “That's a Charlie Copy,” “Copy that,” or “Charlie, Charlie.” These are not proper prowords and will not be used by MARS members. Nor will we use the common Amateur Radio practice of saying “QSL.”

### 8.10.3 BREAK

The proword BREAK is used in message handling as described in the *AFMARS Messaging Manual*. Do not use the proword BREAK to conclude communication with a station, to enter a net or to interrupt communications. There are proper prowords for all of those situations.

MARS members will not use the proword BREAK, or “BREAK, BREAK” to terminate a communication. That is not a proper use of the proword BREAK. OUT is the proword for terminating a communication.

**8.10.4 CLOSE DOWN**

The direction CLOSE DOWN means stations are to stop operating.

**8.10.5 CORRECT / WRONG**

The proword CORRECT means “what you transmitted is correct.” The opposite is WRONG.

**8.10.6 CORRECTION**

When an operator making a transmission makes an error and needs to correct it, the proword CORRECTION will be used. The operator will then repeat the last phrase that was correct and then state the corrected phrase that follows. Note that I SAY AGAIN is not the correct proword for this purpose.

**8.10.7 DISREGARD THIS TRANSMISSION**

When an operator decides in the middle of a transmission that it should be cancelled, the proword DISREGARD THIS TRANSMISSION will be used.

**8.10.8 DO NOT ANSWER**

DO NOT ANSWER is used in sending a message to one or more stations who are not to reply or acknowledge receipt.

**8.10.9 FIGURES**

The proword FIGURES means numerals or numbers, or a mixed group beginning with a numeral, follows. FIGURES is not used in conjunction with the prowords TIME, GROUPS, NUMBER or CALL SIGN. FIGURES is used to distinguish the numerical form of a numeral from the textual form, (i.e., to distinguish “2” from “two”) and is not necessary when a number is not to be transcribed.

For example, FIGURES is not needed in these situations:

“Change to frequency 1 2 decimal 3 4 5”

or

“Close station at 1 2 3 4 ZULU”

**8.10.10 I SPELL**

I SPELL means one or more letters, or a mixed group beginning with a letter, will follow, sent phonetically. When used with a pronounceable letter group, say it, then spell it, then say it again.

Example:

“Tanks, I SPELL TANGO ALPHA NOVEMBER KILO SIERRA,  
Tanks.”

---

**8.10.11 MINIMIZE**

MINIMIZE is a procedural word that means, “It is now mandatory that normal message, telephone and e-mail traffic be dramatically reduced in order that vital messages connected with the situation indicated shall not be delayed.” (ACP-121 (I), s. 394). In effect, it means that only essential messages will be transmitted. As much as possible, non-essential transmissions should be avoided. An order to MINIMIZE may contain specifics about its applicability.

The order to CANCEL MINIMIZE is self-explanatory.

**8.10.12 NEGATIVE / AFFIRMATIVE**

NEGATIVE means “no.” The opposite, “AFFIRMATIVE” meaning, “yes,” is not a proword listed in the ACP. Nevertheless, it is a valid English word, which is widely used in radio and universally understood.

**8.10.13 NO PLAY**

During an exercise, when an actual, “real world” message is to be listed, the proword NO PLAY will be used to indicate that the message is not part of the exercise. The NO PLAY message will be given priority over exercise message traffic.

**8.10.14 PRIORITY, PRIORITY, PRIORITY**

If a station has higher precedence traffic than the communications being conducted, that station can interrupt the communications by stating the precedence of his/her message three times; e.g., “PRIORITY, PRIORITY, PRIORITY.” The NCS, having heard the interruption will seize control and stop the communications so the higher precedence traffic can be passed.

The station with the higher precedence traffic should use some judgment before interrupting. If it appears the on-going communications may be concluded promptly, waiting until it is finished might be more efficient for everyone than causing the interruption.

**8.10.15 RELAY**

RELAY is used in handling messages to mean, “Transmit this message to \_\_\_\_.” When used alone, it means the station being called is to transmit the message to all action and info addressees. If the proword RELAY is followed by a call sign or other indication of an addressee, it means the station being called is to relay it to that station or addressee only.

RELAY can also be used in reference to other transmissions. In net operations, if the NCS cannot hear a station attempting to communicate with the NCS, another station in the net may RELAY the call of the station the NCS does not hear. See section 10.2.2. The station relaying another would say, “I RELAY \_\_\_\_\_, OVER.”

**8.10.16 SAY AGAIN**

The proword SAY AGAIN is used to request a repetition of something that was transmitted. The word “repeat” is **not** used in MARS. The proword I SAY AGAIN means I am about to restate something I have already transmitted.

**8.10.17 SEND / SEND YOUR MESSAGE**

SEND or SEND YOUR MESSAGE is used in response to an offer to send a message. OVER (as an invitation to transmit) can also be used instead, but may seem ambiguous. SEND YOUR MESSAGE is less ambiguous.

**8.10.18 SILENCE, SILENCE, SILENCE**

Anytime an NCS needs to silence the net, he/she will state the proword SILENCE three times. All stations will immediately stop transmitting and remain silent until the NCS announces "SILENCE LIFTED."

When commanded, radio silence is critical. Absolute obedience is required.

**8.10.19 THIS IS**

THIS IS means, "The current transmission is from the station whose call sign follows." This proword can be omitted after communications are established.

**8.10.20 THIS IS A DIRECTED NET**

This proword, spoken by the net control, means that until further notice the net is directed. This means that all stations need permission of the net control to call other stations. The opposite is a free net. In a free net, any station may call any other without NCS permission.

**8.10.21 THROUGH ME**

This proword means "send your message to me. I will relay it."

**8.10.22 UNKNOWN STATION**

UNKNOWN STATION means, "The identity of the station I am attempting to contact is not known to me." This proword is used to reply to a station whose call sign was not heard or was only partially heard.

For example

**"UNKNOWN STATION, THIS IS AFA8AA, SAY AGAIN, OVER."**

Note that this is more efficient than saying, "There is a weak station attempting to check in and I can't quite make out the call sign..."

**8.10.23 USE FULL CALL SIGNS**

USE FULL CALL SIGNS means, until further notice, use complete call signs.

**8.10.24 USE ABBREVIATED PROCEDURE / USE FULL PROCEDURE**

These prowords direct the stations on the net to use abbreviated procedure, or full procedure, respectively, until further notice. See section 8.2 for a description of these procedures.

### 8.10.25 WAIT and WAIT OUT

The proword WAIT is used when a pause is required and will last for only a few seconds. WAIT should not be over-used; you may simply pause a second or two without stating it. WAIT OUT is used when the pause requires more time; i.e., someone might wonder what happened to your signal. The time period associated with the use of WAIT OUT should be as short as possible so network operations are not delayed.

Although the proword WAIT OUT ends with “OUT,” the communication between the two stations is not yet complete. Therefore, no other station will transmit during this pause unless they have higher precedence traffic than that which is being handled. If too much time passes, the NCS can assert control by saying:

**“THIS IS [NCS call sign] OUT.”**

### 8.10.26 WILCO

The proword WILCO is a contraction of the phrase “will comply.” It is used in response to a request or tasking and means that you understand the tasking and agree to accomplish the task. Because it implies that you understand the request, it is never used with the proword ROGER as that would be redundant.

### 8.10.27 WORDS TWICE

The proword WORDS TWICE is used when communication is difficult. It means transmit each phrase twice. If sent by the NCS to all stations, it indicates that all stations are to transmit each phrase twice.

Example:

**“This is my first training session, this is my first training session, OVER.”**

Other prowords especially related to messaging are listed in the *AFMARS Messaging Manual*. A complete list of approved prowords is contained in Attachment 3 of this Manual.

**Check your understanding by using the self-assessment questions in Attachment 4 at the back of this Manual.**

## 9.0 AIR FORCE MARS NETWORKS (NETS)

MARS has many established nets, which are organized for the purpose of moving and delivering messages. MARS nets are part of a global DoD network. A MARS station receiving a message to send can check into a state, region or division net where the message can be relayed or delivered. If the message needs to go to another division, the message is first passed to a “minor relay station” (MRS) that is responsible for taking the message to the TRANSGLOBAL Net where the message is relayed to the region to which it is addressed. Details about the movement of messages are contained in the *AFMARS Messaging Manual*.

Most MARS nets are controlled using voice procedures. Stations check in and Net Controls all use Upper Sideband (USB) and voice procedures for net management. Messages are usually sent using text (digital) modes because they are much faster than sending a message by voice. Information about drafting and sending text messages is contained in the *AFMARS Messaging Manual*.

### 9.1 NET DESIGNATORS AS CALL SIGNS

Networks are assigned distinctive net designators (sometimes called net call signs), which identify the geographic coverage, type of net and the mode of communication. A net designator may be used as a collective call sign referring to all members of the net.

See the *AFMARS Operating Instruction*, Section 11.16 for a detailed description of net designations.

#### 9.1.1 TRANSGLOBAL and National Nets

**Table 9.1-1 - National Nets**

NET DESIGNATOR	DESCRIPTION	MODE
J0G	TRANSGLOBAL National Network ( <i>OPEN NET</i> )	Mixed Mode: Voice and M110A
TRR	TRANSGLOBAL Radio Relay Network ( <i>OPEN NET</i> )	Keyboard-to-Keyboard Digital Sound Card Digital Modes Usually MFSK16
TCN	TRANSGLOBAL CW Telegraphy Network ( <i>OPEN NET</i> )	CW
ALE	TRANSGLOBAL Automatic Link Establishment (ALE) Network ( <i>RESTRICTED NET</i> )	Open to members with ALE identifier. Primary mode: Data/digital conforming to MIL-STD-188-110A, secondary mode: SSB.

NET DESIGNATOR	DESCRIPTION	MODE
PPN	Phone Patch Network (PPN) ( <i>RESTRICTED NET</i> )	Open to approved members.
MSN	Mission Support Network (MSN) ( <i>RESTRICTED NET</i> )	Open to approved members.

Note that the Mission Support Network (MSN) and Phone Patch Network (PPN) are restricted nets. As such, the MSN and PPN only allow registered members to sign in to the nets. Registered members must have MSN or PPN listed on their AF 3661 form in order to participate. During regular net operations, there is strictly no-check-ins permitted of non-members to the net. If you are not a registered member, do not attempt to check in. The exception to this is during the weekly Administrative Net for MSN, which takes place on Saturdays at 0801 PST (0001Z during winter hours), any MARS member may check in during the Admin portion of the Mission Support Network.

### 9.1.2 Region Traffic Nets

Network designators for Region Traffic nets normally are in the format <#><L><L><#> where <#> denotes a number and <L> denotes a letter. The first # indicates the net region. The first letter indicates the net type. The third character indicates the mode and the last digit indicates which instance of the net during that day.

Examples:

1TX1 = Region 1, Traffic Net, Multi-Mode, First net of the day.

7TM2 = Region 7, Traffic Net, M-110A, Second net of the day.

0TS1 = Region 10, Traffic Net, SSB Voice, First net of the day.

See the *AFMARS Operating Instruction* for a full discussion of net nomenclature.

**Check your understanding by using the self-assessment questions in Attachment 4 at the back of this Manual.**

## 10.0 NET OPERATIONS

Most of a MARS operator's on-air time is spent in nets. Our nets function very efficiently because of the compliance of the net participants with the net procedures that have been developed in the ACPs and in MARS. Different nets follow slightly different procedures as approved by the respective Net Managers. Differences are driven by factors such as numbers of stations checking in, type of message traffic handled, geographic area covered and other, local considerations. What is presented here is information about procedures specified in the ACPs. When checking into a net, members should carefully follow any specific instructions given by the Net Control Station (NCS) at the opening of the net. When checking into an unfamiliar net, carefully follow the predominant practices of the other stations on the net.

### 10.1 CALLING AND ANSWERING PROCEDURES

#### 10.1.1 Single Call

A single call is one station calling another station to initiate communications.

Example of a single call using full procedure:

**“AFA1AA, THIS IS AFA1BB, OVER.”**

Example of an answer to a call using abbreviated procedure:

**“THIS IS 1AA (*phonetics*), OVER.”**

Once a station is checked into the net, he/she may contact the NCS after hearing the proword OUT. To contact the NCS using abbreviate procedure, he/she would simply say, “THIS IS [abbreviated call sign] OVER.” In a net using full procedure, the call to the NCS would be “[*NCS call sign*] THIS IS [call sign] ... [state request, e.g., “Request to close”]...OVER.”

#### 10.1.2 Collective Call (also known as a Net Call or Group Call)

A collective call is one in which a single station (such as a Net Control Station) calls a group of stations collectively by using the net designator as a call sign. Collective calls are used to invite stations to check into a net or to receive broadcast messages.

Example:

**“2EM1 THIS IS [*NCS Call Sign*] (*phonetics*), ... OVER.”**

Sometimes, “Limited Collective Calls” may be used, where the NCS may call for only a sub-set of the stations. This is a way of organizing the stations who will respond.

Example:

**“2EM1 THIS IS [*NCS Call Sign*] (*phonetics*), STATIONS WITH TRAFFIC, OVER.”**

*(In this case, the NCS expects to hear only answers from stations with message traffic to send on the net.)*

Example:

**“2EM1 THIS IS [NCS Call Sign] (phonetics), STATIONS IN NEW YORK, OVER.”**  
(In this case, the NCS expects to hear only answers from stations in New York State.)

Example:

**“2EM1, THIS IS [NCS call sign] (phonetics), ADDITIONAL STATIONS FOR THE NET, OVER.”**  
(NCS is soliciting any station - anywhere may answer)

Note that every call to a net designator is a collective call to all of the stations in the net. It is the equivalent of saying, “ALL STATIONS THIS NET...” Unless the call is limited in some way, it requires a reply from all stations in the net, in the order they checked in. This is common practice on Army MARS nets but not on AFMARS nets. The best practice should be to use limited collective calls or DO NOT ANSWER procedures to make it clear that not all stations need to answer.

### 10.1.3 Multiple Call

A multiple call is one in which a single station calls a number of specified stations. An NCS uses a multiple call to acknowledge several stations checking into the net at once.

Example:

**“AFA1AA, AFA1BB and AFA1CC, THIS IS AFA1XX, ROGER, OUT.”**

## 10.2 ANSWERING

When the NCS calls a single station, that station must answer promptly.

When the NCS calls a groups of stations, those stations should carefully answer in the order called, provided, however, that, if one station does not answer, the next station in sequence should answer after waiting a few seconds.

Example:

1XX: **“1AA, 1BB, 1CC, THIS IS 1XX, CHANGE FREQUENCY TO XYZ, OVER.”**  
1AA: **“THIS IS ONE ALPHA ALPHA, ROGER, OUT.”**  
1BB: **“THIS IS ONE BRAVO BRAVO, ROGER, OUT.”**  
1CC: **“THIS IS ONE CHARLIE CHARLIE, ROGER, OUT.”**

When the NCS make a collective, or a limited collective call, stations answering should expect there might be others answering, too. To avoid simultaneous transmissions (“doubling”), each station answering should start to answer, then pause, un-key the transmitter and listen carefully before continuing. If another station is heard, the station pausing must not complete his answer but should start over, after the other station finishes.

Example using full procedure:

“[NCS Call Sign] ( <i>unkey and listen</i> ) <b>THIS IS... ONE ALPHA ALPHA, OVER.</b> ”
---

Example using abbreviated procedure:

“ <b>THIS IS</b> ( <i>unkey and listen</i> ) ... <b>ONE ALPHA ALPHA, OVER.</b> ”
--

### 10.3 CHECKING INTO A NET

When you check into a net, you are answering a collective call made by the NCS. Unless the NCS has directed the use of full procedure, you will use abbreviated procedure to answer. (Note that this is a change from previous AFMARS procedure.) Here are some examples of possible answers to that call.

“ <b>THIS IS</b> ( <i>unkey and listen</i> ) <b>AFT1RR</b> ( <i>phonetics</i> ), <b>OVER</b> ” ( <i>No messages listed means no messages to send.</i> )
“ <b>THIS IS</b> ( <i>unkey and listen</i> ) <b>AFA1PO</b> ( <i>phonetics</i> ), <b>ONE ROUTINE, OVER.</b> ”
“ <b>THIS IS</b> ( <i>unkey and listen</i> ) <b>AFA1CC</b> ( <i>phonetics</i> ), <b>ONE PRIORITY, ONE ROUTINE, OVER.</b> ”
“ <b>THIS IS</b> ( <i>unkey and listen</i> ) <b>AFA1DD</b> ( <i>phonetics</i> ), <b>REQUEST INFORMAL AFN1C, OVER.</b> ”
“ <b>THIS IS</b> ( <i>unkey and listen</i> ) <b>AFA1EE</b> ( <i>phonetics</i> ), <b>CLOSING 1 2 3 0 ZULU, OVER.</b> ” ( <i>Closing before the end of the net.</i> )

After completing your check in, listen carefully to be certain that the NCS has recorded your call sign correctly.

**IMPORTANT:** When responding to a limited collective call, you must only respond when the limited call applies to you. For example, if the NCS calls for stations in a particular state, you must only answer if you are located in that state. If your state has previously been called and you did not answer, you must not answer during a call for another state. You must wait until all of the limited calls are completed and a general net call is made, to answer.

Similarly, you may not answer before your state is called, even to relay another station into the net.

The **only** time a station may transmit out of turn is to list priority traffic.

We must always maintain net order and discipline.

**A NOTE ABOUT LISTING TRAFFIC:** Some net managers do not wish to have the destinations of messages mentioned at the time the traffic is listed. Others prefer to have the NCS advised of the destinations -- or, at least whether it is local or for relay to TRANSGLOBAL -- so he/she doesn't need to ask. Members listing traffic should follow the prevailing practices on any particular net.

## 10.4 RELAYING CHECK-INS/CALLS

During the establishment of a net, and other times, it often occurs that a station hears someone attempting to call whom the NCS and Alternate Net Control Station (ANCS) do not acknowledge. Primary responsibility for RELAYS is with the ANCS.

If neither the NCS nor ANCS hears a station calling, there is a specific procedure for relaying such stations into the net. First, to relay someone else, a station (the “relaying station”) must already be part of the net. No business, including relays, may be conducted by any station not already checked into the net. Also, a relaying station may not call out of turn.

A RELAY can be mentioned as part of the relaying station's check-in procedure. But, the relaying station must wait until the proper time to check-in.

Example of a relay during check-in:

NCS:	“... <b>STATIONS IN WYOMING, OVER.</b> ” (AFA8ZZ not heard by NCS or ANCS)
AFA8XX:	“ <b>THIS IS</b> (unkey and listen) <b>AFA8XX</b> (phonetics), <b>RELAY, OVER.</b> ” (AFA8XX did hear AFA8ZZ trying to check-in)
NCS:	“ <b>AFA8XX THIS IS</b> [NCS call sign], <b>ROGER, SEND YOUR RELAY, OVER.</b> ”
AFA8XX:	“ <b>THIS IS 8XX</b> (phonetics) <b>I RELAY, AFA8ZZ</b> (phonetics), <b>OVER.</b> ”
NCS:	“ <b>8XX THIS IS</b> [NCS call sign], <b>ROGER AFA8ZZ, OUT.</b> ”

A station already checked into the net with a station to RELAY must first gain the permission from NCS before doing so. No station should make an unidentified or unauthorized transmission for any purpose, including RELAYS.

Example of an offer to RELAY:

“ <b>THIS IS 8XX, RELAY, OVER.</b> ”
--------------------------------------

## 10.5 NET ROSTER

In Army MARS nets and certain small AFMARS nets, stations might be expected to remember where they are in the net roster and to answer net calls in the order they checked-in. This is indicated by the NCS acknowledging check-ins by saying, “**AFA#CC, THIS IN** [NCS call sign], **ROGER, ANSWER AFTER AFA#BB, OUT.**” Sometimes, the phrase “You follow...” is substituted for the proword ANSWER AFTER.

## 10.6 NET CALLS

After the NCS has completed his limited collective calls to the net and built the net roster, he/she will make a general net call to capture any additional stations for the net roster. It is at this point that a station who missed his/her turn to check-in may answer.

Example:

**“2EM1 THIS IS [NCS call sign] additional stations for the net OVER.”**

## 10.7 HANDLING MESSAGE TRAFFIC

Once the NCS has a complete roster, he/she should start directing the stations that have listed traffic to send it. (It is also within the discretion of the NCS to allow traffic to be passed before the roster is completed.)

Messages listed with the precedence of IMMEDIATE should be handled first then PRIORITY, and lastly, ROUTINE messages.

If there are multiple IMMEDIATE or PRIORITY messages being sent between different stations, those stations may be sent to other frequencies to pass the traffic so that messages can be passed simultaneously. If necessary, they can be passed on the net frequency.

Stations involved in sending and receiving messages must listen carefully to the NCS instructions so that messages can be passed as efficiently as possible. Other stations on the net should also listen carefully and copy messages if they can. In that way, they may be able to assist with relays and repetitions of messages, should propagation suddenly change.

## 10.8 DO NOT ANSWER TRANSMISSIONS

Normally, according to ACP procedure, if a station makes a collective call to a net to send a message, the entire net roster would be expected to answer, in order, that each station was ready to receive the message. Then, after the message is sent, the entire net roster would be expected to receipt (ROGER) for the message, again in order, indicating complete reception of it. This procedure is very reliable and practicable in smaller nets of fewer than 10 to 15 stations. However, with some AFMARS nets having 30 - 50 stations checked in, that can be extremely time consuming.

DO NOT ANSWER is a proword which means what it says. It is for use when making a transmission (or sending a message) when no reply is required or expected. It is especially useful when sending a message to many stations at once. Note that a DO NOT ANSWER transmission is an abbreviated PLAINDRESS message and requires a TIME indication before the proword OUT. (See the AFMARS Messaging Manual for details).

Example:

**“4TM1 THIS IS [NCS call sign] DO NOT ANSWER MESSAGE ...  
[sends message] ... TIME 1 2 3 4 ZULU, OUT.”**

If warranted, he/she can then call the net and ask, “**4TM1, THIS IS [NCS call sign] DOES ANY STATION REQUIRE A RETRANSMISSION? OVER.**” Any station requiring a repetition can then call the NCS and make his/her request.

Another example:

“**4TM1 THIS IS [NCS call sign] DO NOT ANSWER RADIO CHECK FOLLOWS TIME 1 2 3 4 ZULU, OUT.**”

Note that since no response is expected, the transmission ends with OUT.

## 10.9 RADIO CHECKS

A station requesting a signal report will use the proword RADIO CHECK.

Example:

“**AFA3CC THIS IS AFA3DD, RADIO CHECK OVER.**”

Radio checks should not be given unless requested, and should not be requested excessively.

An NCS might decide to conduct a radio check with some or all of the stations on the net to determine whether propagation has changed to the extent that a frequency change would be required. Alternatively, an NCS might request radio checks after assuming control of a net. The NCS would announce the radio check as shown above. Then, NCS would call each station one at a time. In each case, the station called shall respond with a signal strength and readability report as shown below.

The tables below are a plain language version of the official tables in the ACP-125 (F). Only these signal strengths and readability descriptions should be used in MARS communications:

**Table 10.9-1 - SIGNAL STRENGTH DESCRIPTION**

REPORT OF SIGNAL STRENGTH	MEANING
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	Your signal strength fades to such an extent that continuous reception cannot be relied upon

**Table 10.9-2 READABILITY DESCRIPTION**

REPORT OF READABILITY	MEANING
CLEAR	Your signal has excellent quality
READABLE	Your signal quality is satisfactory
BARELY READABLE	Your signal is almost unreadable
UNREADABLE	Your signal quality is so bad that I cannot understand you
DISTORTED	Your signal is distorted or is suffering bad distortion
WITH INTERFERENCE	Your signal has interference (could be man-made or natural)
INTERMITTENT	Your signal is intermittent

Note that other adjectives, such as “FAIR” and “MEDIUM” are not prescribed descriptions and will not be used on MARS circuits.

A simple reply of “**ROGER, OVER**” means the signal is LOUD and CLEAR.

Example of a single radio check:

NCS:	“ <b>AFA7BB THIS IS</b> [ <i>NCS call sign</i> ], <b>RADIO CHECK, OVER.</b> ” ( <i>NCS calls AFA7BB for a radio check</i> )
AFA7BB:	“ <b>THIS IS SEVEN BRAVO BRAVO, ROGER, OVER.</b> ”
NCS:	“ <b>WEAK WITH INTERFERENCE, OUT.</b> ”

Example of a “network continuity check” (i.e., a radio check with all stations on a net):

NCS:	“[ <i>Net Designator</i> ] <b>THIS IS</b> [ <i>NCS call sign</i> ] <b>DO NOT ANSWER, RADIO CHECK follows, TIME 1 2 3 4 ZULU, OUT.</b> ” ( <i>NCS initiates a Radio Check for the entire Net</i> )
NCS:	“ <b>7AA</b> ( <i>phonetics</i> ), <b>OVER.</b> ” ( <i>NCS begins calling stations logged into the net</i> )
AFA7AA:	“ <b>THIS IS 7AA</b> ( <i>phonetics</i> ), <b>GOOD READABLE, OVER.</b> ”
NCS:	“ <b>GOOD READABLE, OUT.</b> ”
NCS:	“ <b>7BB</b> ( <i>phonetics</i> ), <b>OVER.</b> ”
AFA7BB:	“ <b>THIS IS 7BB</b> ( <i>phonetics</i> ), <b>WEAK READABLE, INTERFERENCE, OVER.</b> ”
NCS:	“ <b>WEAK READABLE, OUT.</b> ”
NCS:	“ <b>7CC</b> ( <i>phonetics</i> ), <b>OVER.</b> ”

AFA7CC:	<b>“THIS IS 7CC (phonetics), ROGER, OVER.”</b>
NCS:	<b>“ROGER, OUT.”</b>

Note that, to save time, the NCS omits his/her own call sign.

### 10.10 DELEGATING AND ASSUMING CONTROL

In the event that a net control station needs to leave the net, he/she needs to delegate net control to another station. The simplest way to do that is to simply appoint someone to serve as NCS.

Example:

NCS:	<b>“8ZZ (phonetics) THIS IS [NCS call sign] ASSUME CONTROL, TIME 1 2 3 4 ZULU, OVER.”</b> <i>(NCS directs AFA8ZZ to take control of the net)</i>
AFA8ZZ:	<b>“THIS IS 8ZZ (phonetics), WILCO, OUT.”</b> <i>(AFA8ZZ acknowledges NCS direction)</i>
AFA8ZZ:	<b>“[Net Designator] THIS IS AFA8ZZ (phonetics) ASSUMEING CONTROL TIME 1 2 3 4 ZULU, OUT.”</b> <i>(AFA8ZZ is now NCS)</i>

When control of a net is changed, the question arises whether the NCS assuming control has good communications with all stations on the net. This is particularly true in long exercises and actual events when many stations may have been silent for long periods of time during which propagation likely changed.

Therefore, it makes sense for the in-coming NCS to re-establish the net roster so that he/she knows with whom he/she has communications. If the in-coming NCS has a roster of the existing net, a continuity check can be done as described in section 10.9.

If the in-coming NCS does not have a current roster of stations in the net, it is usually most efficient to announce that the net is being re-established and have all stations check in again. The NCS can then use limited collective calls to make an orderly check-in process.

### 10.11 CHANGING NET FREQUENCY

Due to changes in HF radio propagation, it is inevitable that the net operating frequency will need to be changed in long-duration events. Generally, the net frequency will need to be increased between dawn and noon, and decreased after sunset. The NCS is responsible for recognizing when a change is necessary and for directing that change before propagation is lost. All stations must follow the directions to change frequency or be left out of the net.

The NCS must determine the method of communicating the change of frequency to all stations in the net. The NCS may decide to do this using a DO NOT ANSWER message or one which requires a receipt.

Example of a change of frequency instruction requiring a receipt:

NCS:	“[Net Designator] <b>THIS IS</b> [NCS call sign] <b>CHANGE FREQUENCY TO</b> [frequency designator] <b>NOW. TIME 1 2 3 4 ZULU, OVER.</b> ” (NCS directs all members of the net to change frequency)
AFA1AA:	“ <b>1AA, WILCO, OUT.</b> ” (IAA Acknowledges and move to new Frequency Designator)
AFA1BB:	“ <b>1BB, WILCO, OUT.</b> ” (IBB Acknowledges and move to new Frequency Designator)
...	

Example of a change frequency instruction using DO NOT ANSWER:

NCS:	“[Net Designator] <b>THIS IS</b> [NCS call sign] <b>DO NOT ANSWER, CHANGE FREQUENCY TO</b> [frequency designator] <b>NOW. TIME 1 2 3 4 ZULU, OVER.</b> ” (NCS directs all members of the net to change frequency)
ANCS:	“[Net Designator] <b>THIS IS</b> [NCS call sign] <b>DO NOT ANSWER, CHANGE FREQUENCY TO</b> [frequency designator] <b>NOW. TIME 1 2 3 4 ZULU, OVER.</b> ” (Each ANCS should echo the direction of the NCS and then move to specified frequency)

In either case, the NCS should leave a station to guard the original frequency and notify anyone who calls there of the frequency change. Doing so by using a text mode such as M110A and encrypted text enhances operational security.

Also, the NCS should consider reconstituting the net on the new frequency, creating a fresh net roster -- or, in the alternative, conducting a continuity check (RADIO CHECK) -- to determine which stations are audible, given the propagation characteristics of the new frequency.

**Check your understanding by using the self-assessment questions in Attachment 4 at the back of this Manual.**

## **11.0 NET CONTROL STATION (NCS)**

A Net Control Station (NCS) is a station designated to control traffic flow and enforce circuit discipline within a net. The tempo of any traffic net arises from the precision and timing of its NCS operator combined with his ability to communicate under all conditions. Net Control procedures must be executed with precision and clarity to ensure that all net stations will interpret the NCS's instructions as intended.

Because the passage of information by voice is slower than other modes, it is important that Net Control Stations use standard procedures and minimal airtime to maximize net efficiency. NCS must set an example of how the net members are to conduct themselves. Most will follow the example of the NCS.

Just as traffic handlers must minimize excess words to speed throughput, NCS's must also minimize excess words and transmissions in conducting a net.

**BE CLEAR BE BRIEF BE CONCISE BE QUIET**

### **11.1 TYPES OF NET CONTROL STATIONS**

There are two (2) types of Net Control Stations; Net Control Station (NCS) and Alternate NCS or ANCS. Whether to appoint one or more ANCS's is within the discretion of the NCS. However, given the geographic size of our division nets, it is usually a good idea to have one or more ANCSs geographically separated from the location of the NCS. The geographic separation may help one hear stations that the other does not.

#### **11.1.1 Net Control Station (NCS) Duties**

- a) Establishes the net and closes the net;
- b) Directs Net activities, such as passing traffic, to maintain optimum efficiency;
- c) Chooses net frequency, maintains circuit discipline and frequency accuracy;
- d) Maintains a net log and records participation in the net and movement of messages;
- e) Appoints one or more Alternate Net Control Stations (ANCS);
- f) Determines whether and when to conduct network continuity checks;
- g) Determines when full procedure and full call signs may enhance communications;
- h) Subject to Net Manager guidance, directs a net to be directed or free.

#### **11.1.2 Alternate Net Control Station (ANCS) Duties**

- a) Assists the NCS to maintain optimum efficiency;
- b) Assumes NCS duties in event that the NCS develops station problems;
- c) Assumes NCS duties for a portion of the net, as directed or as needed;
- d) Serves as a resource for the NCS; echoes transmissions of the NCS if, and only if, directed to do so by the NCS;

- e) Maintains a duplicate net log.

## **11.2 SELECTION OF NET CONTROL STATIONS**

Basic NCS training is part of every new member's initial training in AFMARS. Therefore, any AFMARS member who has completed initial training should be able to serve as NCS or ANCS when needed. Should an emergency arise which warrants the establishment of a MARS net when one is not scheduled, or if a scheduled net is not established by five minutes after the scheduled time, any AFMARS member is authorized and expected to do so.

No special NCS certification is needed to assume net control. However, the Net Manager can select members who have demonstrated superior skills as an NCS to serve as NCS on the more challenging nets, on a regular basis.

## **11.3 TOOLS OF THE NCS**

### **11.3.1 Stations with a Strong, Area-Wide Range**

Net Control Stations must hear and be heard throughout the area served by the net, even under adverse conditions. Good antennas, station equipment properly aligned and in good condition – preferably, capable of providing maximum allowable output – will help achieve these goals.

While an NCS located near the center of the net area has a clear communications advantage, an NCS/ANCS team located in separate parts of the area can also provide the necessary coverage.

Frequency accuracy and stability is essential. All MARS stations must be NTIA compliant and have frequency stability of +/- 20 Hz. NCS stations must also be precisely accurate in their frequency since all other stations will tune to their signals.

An effective antenna for an NCS station will usually be a full-sized dipole, loop, or other antenna at least 25-30 feet above the ground. Loaded, shorted, compromised or improvised antennas will not usually achieve the quality of signal necessary to control a net over a wide area. Also, significantly lower antennas will not achieve the signal strength needed.

### **11.3.2 Speaking Ability**

Words spoken in a slow, controlled manner, with moderate voice tone, will usually minimize requests for repetition. A Net Controller must also project the sound of control and authority. Other operators on the net will emulate the manner of speaking of the NCS in speed, cadence, and brevity.

### **11.3.3 Computer With Internet Connection**

Internet access at the NCS operating position is very desirable as we rely on Internet resources to make judgments about frequency selection. The computer will also serve as a terminal for reception of text messages, and as a logging system to record net participants' time.

### 11.3.4 Reference Materials

The NCS should have immediate access to an accurate clock, and reference materials including, at a minimum, a frequency matrix showing frequencies and designators, a copy of the *AFMARS Messaging Manual* and *Annex*, and the *Routing Indicator Manual*.

The NCS and ANCS might have the following (depending upon the level of the net) available in a notebook or binder for their use during the conduct of a net:

- Net Schedules (Region, State, TRANSGLOBAL, MSN, PPN, etc.);
- Contact List (Officials and Net Control Stations);
- Station Roster (Billet Call Signs);
- Station Roster (Generic Call Signs);
- Net Script;
- Map (Net area, Region, State, etc.);
- Applicable Operations Memos;
- AFMARS Frequency Matrix;
- Other Agency Information.

### 11.4 PREPARING TO SERVE AS NCS

The NCS can use the period of 30 minutes before net time to contact an ANCS, get the logging computer ready, start filling in the log, check websites for MARS news and information to be passed on the net, check the propagation websites to make some judgments about which net frequency to use, etc.. If an alternate frequency is to be used, the NCS should assign an ANCS to monitor that frequency. If propagation makes it necessary to change from the usual net frequency, the NCS should announce the change in frequency and assign an ANCS to monitor the vacated (usual) frequency to notify late stations of the change.

### 11.5 NO NCS AT NET TIME

If a scheduled net does not start by 5 minutes after the scheduled net time, or if an emergency makes a net necessary at an unscheduled time, any MARS member – but especially any experienced NCS – should step forward to start a net, as soon as possible.

Example: [*No net started at 5 minutes past the scheduled time*]

AFA6XX: "THIS IS ALPHA FOXTROT ALPHA SIX X-RAY X-RAY, OVER." <i>(Pause – If there is an NCS, he/she should answer – Nothing Happens)</i>
AFA6XX: "THIS IS ALPHA FOXTROT ALPHA SIX X-RAY X-RAY, IS THERE A NET CONTROL STATION ON THE FREQUENCY? OVER." <i>(Pause – If there is an NCS, he/she should answer – Still No Answer)</i>

AFA6XX: **“THIS IS ALPHA FOXTROT ALPHA SIX X-RAY X-RAY, I AM ASSUMING NET CONTROL, OUT.”**  
(Thereafter, AFA6XX, as NCS starts the Net)

## 11.6 ESTABLISHING A NET

### 11.6.1 Minimum Procedure

The minimum procedure necessary to establish a net is to simply call the net designator.

Example:

“[Net Designator] (phonetics) **THIS IS** [NCS call sign] (phonetics) **THIS IS A DIRECTED NET, OVER.**”

To establish a net where two or more stations are already in communication, or when an emergency requires a net at an unscheduled time, so no designator has been assigned, the simplest method would be to simply state:

**“THIS IS** [NCS call sign] (phonetics) **THIS IS A DIRECTED NET, OVER.**”

In response to one of these collective calls, stations should check-in using the usual procedure.

### 11.6.2 Limited Net Calls

In situations when the NCS can anticipate a large number of check-ins, he/she should use a limited net call (i.e., a limited collective call). For example, the NCS can call for stations in one state at a time, one region at a time, or stations with traffic, etc. as a way to reduce the number of stations calling at once.

Example:

NCS: **“[Net Designator] (phonetics) THIS IS [NCS call sign] (phonetics) STATIONS IN NEW HAMPSHIRE, OVER.”**

AFA1AA: **“THIS IS AFA1AA (phonetics) OVER.”**

AFA1BB: **“THIS IS AFA1BB (phonetics) ONE ROUTINE, OVER.”**

NCS: **“AFA1AA (phonetics), AFA1BB (phonetics), THIS IS [NCS call sign] (phonetics) ROGER, OUT.”**  
(NCS Then makes a call for additional New Hampshire stations, and awaits a reply, if no reply then)

NCS: **“THIS IS [NCS call sign] (phonetics) NOTHING HEARD, OUT.”**

### **11.6.3 Maintaining a Net Log**

The NCS must maintain a net log or roster of the stations that have checked-in and note when stations leave. Note must also be made of stations listing traffic and sending or receiving traffic. The NCS should also log any other significant occurrences during the net, such as interference, propagation difficulties, etc..

## **11.7 SPECIAL SITUATIONS**

### **11.7.1 Note Regarding Military Call Signs**

Military stations using their tactical call signs or military MARS call signs may check into established AFMARS nets. These stations must not be denied access to MARS circuits. Stations entering the net using tactical call signs will not be challenged by the NCS; rather the NCS shall immediately query them to determine how AFMARS can provide assistance. Military tactical call signs come in a variety of formats. For example, "Reach04," "Puerto Rico," "J3B," or "Cold Chisel." If you hear something that could be such a call sign, assume it is valid. Err, if at all, on the side of providing service.

### **11.7.2 Priority Traffic During Check-In**

The question arises whether initial check-ins should be interrupted to pass priority traffic. This is a discretionary judgment for the NCS. If the traffic is known to be priority and from or to a military unit, and a station that can take such traffic is already checked in, NCS may choose to interrupt check-ins to allow the traffic to be passed promptly. Often, though, even priority traffic is not so time sensitive that a few minutes will matter and it may be that a more capable station for passing the traffic has yet to check-in. The NCS makes the decision about what traffic is passed when.

### **11.7.3 Stations Partially Heard**

When check-ins are occurring, sometimes stations are not heard clearly or completely. The NCS should simply acknowledge the stations that are heard and then repeat the call. The partially heard station will call again. This process will eventually capture all of the stations wishing to check in.

Alternatively, the NCS can acknowledge the stations that were heard and then ask, "Are there any RELAYS? OVER." Excess wording such as "There were several dual transmissions...." or "you got walked on..." add nothing and should be avoided. Also, if a weak signal is partially heard, the proper proword to call it is, "UNKNOWN STATION, THIS IS AFA7XX, SAY AGAIN, OVER."

Calling, "Weak station, THIS IS ..." does nothing. The station probably does not realize he/she is "weak." Use the proper proword.

## 11.8 GENERAL NET CALL

Once all of the limited calls have been completed, NCS should make a general net call to capture any additional stations, which may be waiting to check in. General net calls should be made periodically during the net and after any periods when messages were being passed to check-in any additional stations who have been waiting.

Example:

“*[Net Designator] (phonetics)* **THIS IS** *[NCS call sign] (phonetics)* **additional stations for the net, OVER.**”

## 11.9 DIRECT NET BUSINESS

Once the net is established and all stations are checked-in and have listed their traffic, the next order of business should be to pass the traffic.

### 11.9.1 Handle Traffic According To its Precedence

The order in which traffic is to be handled is: Operational Immediate (O), Priority (P), Routine (R). While traffic is being passed, the NCS should, if able, copy the traffic in case he or she can assist with the passing of the traffic. The NCS should also stay alert for any traffic, which does not conform to MARS standards, and for any stations that may attempt to break in with higher precedence traffic.

Traffic listed for a station on the net should be sent directly to that station. Traffic listed for other stations within the division should be passed to a station that can relay or deliver it, or the station listing it may hold the traffic. Traffic for distant regions should be sent to a Minor Relay Station (MRS) who can take the traffic to the TRANSGLOBAL Net.

### 11.9.2 Procedure For Directing Message Traffic

When traffic is listed and the NCS is aware of a potential taker of it, the NCS will, at an appropriate time, direct the sender to call the taker and send the traffic. The process for doing so should be substantially like this:

“**4YY (phonetics) call 4ZZ (phonetics) and SEND one ROUTINE, OUT.**”

At times one location may have several pieces of traffic addressed to it. When this occurs the NCS may direct the sender to pass these consecutively to the same taker, if doing so will not take too much time. However, whether to do so is in the discretion of the NCS. In any case, the limit should be three (3) or fewer pieces at a time.

Consecutive messages should be avoided if the messages are particularly long or time consuming, especially if the net is otherwise busy. The NCS needs to make net calls occasionally to allow other stations into and out of the net. The NCS must maintain a balance of getting messages passed and permitting opportunities for stations to contact the NCS. In such cases, use of an alternative frequency should be considered.

### 11.9.3 Procedure For Routing Traffic To An Alternate Frequency

In a major event causing lots of traffic, it may become desirable to move stations off of the net frequency to pass traffic. The NCS must decide whether to do so. In making that decision, the NCS should consider the effects of HF radio propagation and send stations to either (a) a frequency close to the net frequency that will have similar propagation, or (b) to some other frequency that will have propagation usable by the two stations involved in passing the traffic. In either event, the decision should be made decisively with minimum discussion. The process for doing so would sound substantially like this:

**“9YY (phonetics) call 9ZZ (phonetics) move to [frequency designator] and SEND one [precedence]. Advise when you return to this frequency. OUT.”**

**NOTE:** precedence could be ROUTINE/ PRIORITY/etc.. In such an event, the NCS should also assign an ANCS to go to the alternate frequency to assist, if needed.

### 11.9.4 Administrative And Informal Traffic

After formal traffic has been passed, other “informal traffic” may be allowed. The NCS must be careful to maintain net discipline at this time. All MARS transmissions must relate to MARS business. Chitchat and non-MARS communications are not authorized on MARS frequencies and must be interrupted by the NCS. To interrupt, the NCS need only say, “**THIS IS [NCS call sign] OUT.**” The stations so interrupted should understand their communication is terminated.

Some types of informal communications, however, are permitted, e.g., to discuss MARS business or technical data, as well as checks pertaining to MARS operation. NCSs must remain alert to interrupt informal communications which slip into improper subject areas, last too long, or which need to stop to permit higher precedence traffic to be passed. The NCS should simply say, “**THIS IS [NCS call sign] OUT.**” The stations hearing this should realize that the frequency is no longer theirs.

### 11.10 “DEAD AIR”

NCS's should not feel anxious about “dead air” where nothing is being said. A quiet frequency that is available for immediate handling of traffic is a desirable thing. Also, silence is the ideal in transmissions security (TRANSEC). A shortwave listener who is trolling around for unlisted activities such as ours might tune right over our frequency without realizing it, if the frequency is silent at the time. Furthermore, a military or government radio operator who is unfamiliar with the rhythm of our nets might get discouraged while waiting to check in if there is not sufficient “down time.” Therefore, maintaining a clear frequency is legitimate net business.

### 11.11 MAKE NET CALLS PERIODICALLY

Some stations will wish to enter and leave the net from time to time, to take traffic to another net or frequency, check-in late, etc. Periodic net calls – to be made every 5 to 15 minutes – also provide opportunities to address the NCS. (MARS stations who become familiar with net operations will feel comfortable calling any time they hear an OUT. But, DoD or other non-MARS stations might need a more clear invitation to check-in.) If the net holds listed traffic for a station, the NCS can so indicate during the net call, as this might alert someone listening to the availability of traffic.

Example:

“*[Net Designator]* (*phonetics*) **THIS IS** *[NCS call sign]* (*phonetics*) **the net holds traffic for \_\_\_\_\_, additional stations for the net, OVER.**”

**NOTE:** *This is a sample of what an NCS might say. It is not required nor suggested that every NCS needs to make net call exactly this way. The Net Manager establishes policy.*

### 11.12 ON-AIR TRAINING

Prior to the end of the net, and traffic load permitting, the NCS, ANCS, may conduct a Training Session. This might incorporate training regarding procedures that may have been neglected during the net business portion, or just some general training refreshers. Care should be taken to avoid on-air training about subjects that are FOUO.

### 11.13 CONTINUITY CHECKS (RADIO CHECKS)

It is within the discretion of the NCS whether to run “continuity checks” to find out which stations can be heard. Continuity checks can be eliminated on nets lasting less than an hour and on longer nets if traffic volume makes it impractical to run the continuity checks. Although checks are not required for nets lasting less than an hour, NCS's may conduct them to test propagation or for training purposes.

Example:

NCS: “*[Net Designator]* **THIS IS** *[NCS call sign]* **DO NOT ANSWER, RADIO CHECK follows, TIME 1 4 4 5 ZULU, OUT.**”  
*[Pause]*  
*(NCS initiates a Radio Check for the entire Net)*

NCS: “**FIVE ALPHA ALPHA, OVER.**”  
*(NCS begins calling stations logged into the net)*

AFA5AA: “**THIS IS FIVE ALPHA ALPHA, LOUD CLEAR, OVER.**”

NCS: “**LOUD CLEAR, OUT.**” *[Pause]*

NCS: “**FIVE BRAVO BRAVO, OVER.**”

AFA5BB:	<b>“THIS IS FIVE BRAVO BRAVO, GOOD READABLE, OVER.”</b>
NCS:	<b>“GOOD READABLE, OUT.”</b>

**NOTE:** *The NCS does not use his/her call sign during the continuity check, in order to save time.*

**NOTE:** *NCS should un-key and pause after each use of the proword OUT in case a station wishes to call.*

### 11.14 TERMINATING NET OPERATIONS

At the scheduled end of the net, if all the traffic has been passed, the NCS shall direct all stations to close down. The proword CLOSE DOWN is used for this purpose.

Example:

“[Net Designator] THIS IS [NCS call sign] CLOSE DOWN, OUT.”
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### 11.15 DELEGATING AND ASSUMING CONTROL

Every station checked into a net should remain on the net and be able to assist in any way needed. It is particularly critical that the NCS remain on the net and available.

If the NCS must leave the net, he/she must delegate the NCS duty to the ANCS, if there is one, or to some other station with a good signal.

Example:

NCS:	<b>“3ZZ (phonetics) THIS IS [NCS call sign] ASSUME CONTROL, OVER.”</b> <i>(NCS directs AFA3ZZ to take control of the net)</i>
AFA3ZZ:	<b>“THIS IS 3ZZ (phonetics), ROGER, I AM ASSUMING CONTROL, OUT.”</b> <i>(AFA3ZZ acknowledges NCS direction)</i>
AFA3ZZ:	<b>“[Net Designator] THIS IS AF38ZZ (phonetics) additional stations for the net, OVER.”</b> <i>(AFA3ZZ is now NCS, so makes a net call)</i>

**[NOTE:** *As soon as the NCS responsibility is transferred, the relief NCS makes a net call to alert all stations to the change and uses phonetics to assist them getting his call sign correctly.]*

When net control is changed during a long-duration net (i.e., longer than one hour) the relieving NCS should either (1) re-open the net and re-establish a roster as discussed in Section 11.6, or (2) conduct a continuity check using the existing roster to determine which stations have propagation to the NCS. Many times, the roster will change as a result.

### ***11.16 USE OF ALTERNATE FREQUENCIES***

The NCS may shift all or part of the net from the normal frequency to another division frequency when interference or propagation become a major problem, or to expedite moving a large volume of traffic. NCSs should determine in advance what alternate frequencies are available for use by consulting with the Net Manager.

Simultaneous use of alternate frequencies should be considered when the net holds significant numbers of messages. In such an event, a sending station, a taking station and an alternate net control station (ANCS) may be instructed to use the alternate frequency.

Alternatively, the NCS may move the entire net to an alternate frequency if severe interference or poor propagation disrupts the net operation. In that event, one station may be directed to remain on the primary frequency to direct late-arriving stations to the alternate frequency. Remember to always refer to frequencies by their designators -- not the numeric frequency -- but never refer to the frequency you are on by its designator.

Example:

NCS:	<b>“3YY (<i>phonetics</i>) THIS IS [NCS call sign] ASSUME NET CONTROL THIS FREQUENCY AFTER NET MOVES TO ALTERNATE, OVER.”</b> (NCS directs AFA3YY the assumes net control of the frequency)
AFA3YY:	<b>“THIS IS 3YY (<i>phonetics</i>), WILCO, OUT.”</b> (AFA3YY acknowledges NCS direction)

See Section 10.8 for examples of frequency change instructions.

In a major event where Army MARS is active, consideration may be given to combining net operations on one service's frequency so that another, similar frequency from the other service is made available for traffic handling. For example, if a net is run on an Army regional frequency, stations could check in there and use the AFMARS division frequency as an alternate for passing traffic.

In selecting net frequencies and alternate frequencies, the NCS should make use of any available propagation information.

**Check your understanding by using the self-assessment questions in Attachment 4 at the back of this Manual.**

**Attachment 1 - GLOSSARY OF TERMS AND ACRONYMS**

TERM / ACRONYM	MEANING
AARS	Army Amateur Radio System
ACP	Allied Communications Publication
AF	Air Force
ALE	Automatic Link Establishment
ANCS	Alternate Net Control Station
CJCSI	Chairman Joint Chiefs of Staff Instruction
COMSEC	Communications Security
METL	Mission Essential Tasks List
CONUS	Continental United States - The contiguous states, e.g., not including Alaska, Hawaii and territories (See OCONUS)
DoD	Department of Defense
DoDI	Department of Defense Instruction
FEMA	Federal Emergency Management Agency
FOUO	For Official Use Only
GMT	Greenwich Mean Time
HF	High Frequency, e.g., 3.0 MHz through 30.0 MHz
Hz	Hertz
LSB	Lower Side Band (Not used in AFMARS)
MARS	Military Auxiliary Radio System
MET	Mission Essential Tasks
METL	Mission Essential Tasks List
MHz	Mega Hertz
MMM	MARS Messaging Manual
MOI	MARS Operating Instruction
MSN	Mission Support Network
NTIA	National Telecommunications and Information Administration
NTM	National Training Manual
OPR	Office of Primary Responsibility
OPSEC	Operations Security

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TERM / ACRONYM	MEANING
PII	Personally Identifiable Information
PPN	Phone Patch Network
PST	Pacific Standard Time
RMD	Region MARS Director
SMD	State MARS Director
THREATCON	Threat Condition
TRANSEC	Transmission Security
TTP	Tactics, Techniques, and Procedures
U.S.	United States
USAF	United States Air Force
USB	Upper Side Band
USMTF	U. S. Message Text Formats
VHF	Very High Frequency, e.g., 30 MHz through 300 MHz
VOX	Voice Operated Transmission
ZULU	Another name for GMT or Universal Time Coordinated

**Attachment 2 - Sample MARS Log**

<b>MARS Log</b>		<b>Station:</b>		<b>Month:</b>					
<b>Date</b>	<b>Start</b>	<b>End</b>	<b>Freq.</b>	<b>Net.</b>	<b>NCS</b>	<b>Trf.</b>	<b>On-Air Hrs</b>	<b>Other Hrs</b>	<b>Comments, msg detail</b>

**Attachment 3 - ProWords & Z-Signals**

VOICE PROWORD	MEANING	TELETYPE PROSIGN	Z - SIGNAL
ACKNOWLEDGE (ACK)	Addressee must send acknowledgement		ZEV
AFFIRMATIVE	Yes		
ALL AFTER	The part of the message I reference is everything after . . .	AA	
ALL BEFORE	The part of the message I reference is everything before . . .	AB	
ANSWER AFTER	Station called, when answering, answer after [call sign]		ZGO
ASSUME CONTROL	Take control of the net until further notice		ZKD
AUTHENTICATE	The station called is to reply to the challenge that follows. . .		INT ZNB
AUTHENTICATION IS . . .	The transmission authentication of this message is . . .		ZNB
BEADWINDOW	A disclosure of sensitive information has occurred.		
BREAK	Indicates the separations between the heading and the text and between the text and the end procedure.	BT	
(RE)BROADCAST YOUR NET	Link the two nets under your control for automatic rebroadcast		
CALL SIGN	The group that follows is a call sign		
CLOSE DOWN	Stations are to close. Acknowledgment required.		ZKJ
CORRECT	You are correct.	C	
CORRECTION	<ul style="list-style-type: none"> <li>a) An error has been made in this transmission. The transmission will continue with the last word correctly transmitted.</li> <li>b) An error has been made. The corrected version is . . .</li> <li>c) In response to your request for verification, the following is the corrected version. . .</li> </ul>	EEEEEEEE  C	
DISREGARD THIS TRANSMISSION OUT	This transmission is in error. Disregard it.	EEEEEEEE AR	

VOICE PROWORD	MEANING	TELETYPE PROSIGN	Z - SIGNAL
DO NOT ANSWER	Stations called are not to answer the call, receipt for the message, or make any transmission in response to this transmission	F	
EXECUTE	Carry out the purpose of this message or signal to which it applies (executive method)	IX . . .	
EXECUTE TO FOLLOW	(Delayed executive method) EXECUTE to follow.	IX	
EXEMPT . . .	The stations following are exempt from the collective call	XMT	
FIGURES	Numerals, or a mixed group beginning with a numeral follow(s) . . .		
FLASH	Precedence is FLASH (not used in MARS)	Z	
FROM	The following is the originator of this message	FM	
GRID	The following is a grid reference		
GROUPS	This message contains the number of GROUPS indicated	GR	
GROUPS NO COUNT	The number of GROUPS has not been counted	GRNC	
I AM ASSUMING CONTROL	I am in control of this net until further notice		ZKA
I AUTHENTICATE	The group that follows is the reply to your challenge		ZNB
IMMEDIATE	The precedence is IMMEDIATE.	O	
IMMEDIATE EXECUTE	Act as directed on receipt of EXECUTE	IX	
INFO	The following are INFO addressees	INFO	
I READ BACK . . .	This is my response to your READ BACK instruction . . .	IRB	
I SAY AGAIN	I am repeating what I said . . .	IMI	
I SPELL	The following are phonetic letters to spell the previous word or letter(s) beginning a group.		
I VERIFY . . .	The following is my response to your request to VERIFY . . .	C	
MESSAGE	A message that requires recording is about to follow		ZBO
MINIMIZE	Reduce traffic and net activity to minimum.		

VOICE PROWORD	MEANING	TELETYPE PROSIGN	Z - SIGNAL
MORE TO FOLLOW	The transmitting station has more messages for the receiving station	B	
NEGATIVE	No		ZUG
NET NOW	All stations on the net are to tune to my signal.		ZRC2
NO PLAY	During an exercise, "NO PLAY" indicates a message that is real, not part of the exercise.		
NOTHING HEARD	No reply to my call was heard.		ZGN
NUMBER	Station serial number of message.	NR	
OUT	End of transmission, no reply is expected.	AR	
OVER	End of my transmission. Go ahead with yours. Transmit.	K	
PRIORITY	Precedence if PRIORITY. May be spoken 3 times to interrupt lower precedence traffic.	P	
READ BACK	Repeat this entire transmission back to me exactly as you received it.	G	
RELAY	Station called, transmit this message to all addressees unless fewer are specified.	T	ZOF
RELAY TO . . .	Transmit this message to the station(s) following . . .	T	ZOF
RELAY THROUGH	Relay your message through . . .		ZOK
ROGER	I received your transmission satisfactorily.	R	
ROUTINE	Precedence is ROUTINE.	R	
SAY AGAIN (. . .)	Repeat your last transmission. Repeat the portion of your transmission indicated.	IMI	
SEND YOUR [MESSAGE]	I am ready to receive your [message].	K	
SERVICE	The message that follows is a SERVICE message	SVC	
SIGNALS	The following group is taken from a Signals book.		
SILENCE (THREE TIMES)	Cease transmitting until SILENCE IS LIFTED	HM HM HM	
SILENCE IS LIFTED	Normal communications may continue		ZUG HM HM HM
SPEAK SLOWER	Reduce the speed of your transmission		

VOICE PROWORD	MEANING	TELETYPE PROSIGN	Z - SIGNAL
STOP REBROADCASTING	Cut the link and cease automatic rebroadcasting between nets		
THIS IS	The station transmitting is . . .	DE	
THIS IS A DIRECTED NET	Until further notice, this net is directed		ZKB
THIS IS A FREE NET	Until further notice, the net is free		ZUG ZKB
THROUGH ME	Relay your message through this station		ZOE
TIME	The following is the date-time group of this message		
TO	The following are the action addressees of this message	TO	
-- TO --	The part of the message to which I refer is from TO .		
UNKNOWN STATION	The ID of the station I am attempting to contact is unknown.	AA	
USE ABBREVIATE CALL SIGNS	Until further notice, use abbreviated call signs		
USE ABBREVIATED PROCEDURE	Until further notice, use abbreviated procedure		
USE FULL CALL SIGNS	Until further notice, use full call signs		
USE FULL PROCEDURE	Until further notice, use full procedure.		
VERIFY	Addressee requests you check with originator and send a corrected version	J	
WAIT	I must pause a few seconds	AS	
WAIT OUT	I must pause more than a few seconds.	AS AR	
WILCO	I have received your instruction, understand it and will comply. (Not used with ROGER)		
WORD AFTER	I refer to the word immediately following	WA	
WORD BEFORE	I refer to the word immediately before	WB	
WORDS TWICE	Due to poor conditions, send each phrase or code group twice.		
WRONG	Your last transmission was wrong. The correct version is .		ZWF

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## Attachment 4 - Self Assessment Questions

Use these review questions to check your understanding of the material.

### SECTION 2 NEW MEMBER QUICK START GUIDE

1. Where would you find times and frequencies of nets?
2. When should you tune your station?
3. Using your call sign, how would you check into a net?

### SECTION 4 AIR FORCE MARS NATIONAL TRAINING PLAN

1. In addition to training staff, who else may assist with training?
2. What four documents comprise AFMARS Training?
3. What are Mission Essential Tasks, (MET)?

### SECTION 5 INTRODUCTION TO AIR FORCE MARS

1. What is the MARS Mission?
2. How many Regions are there in AFMARS?
3. MARS Regions are similar to what other organizational scheme?
4. What is the purpose of Administrative Nets?
5. What Region do the following call signs represent and where might they be?
  - AFA3PQ
  - AFA6CD
  - AFA8KB
6. What staff positions and Regions do the following call signs represent?
  - AFR2C
  - AFD7MO
  - AFN5E
  - AFS3PA

### SECTION 6 AIR FORCE MARS MEMBERSHIP

1. List three requirements of individual membership?
2. What is the primary mode we use for digital communications?
3. What is our frequency stability requirement and by whose authority?
4. What is the importance of MARS members having an active email account?

### SECTION 7 GENERAL REQUIREMENTS FOR MILITARY COMMUNICATION

1. How are most MARS nets managed?
2. Why are our frequencies referred to by designators?
3. What is your abbreviated call sign?
4. What is PII and its definition?
5. According to Rules of Radio Discipline, what must we **ALWAYS** do?
6. According to the Rules of Radio Discipline, what must we **NEVER** do?
7. What two speech techniques are suggested for use?
8. What are the priorities of communication, in order of importance?
9. What OPSEC practices must MARS stations **ALWAYS** practice?

**SECTION 8                    GENERAL OPERATING PROCEDURES**

1. When is full procedure **ALWAYS** used?
2. Under which conditions should abbreviated procedure be used?
3. What is the difference between a **DIRECTED NET** and a **FREE NET**?
4. What is the difference between **OVER** and **OUT** and are they ever used together?
5. When a mistake has been made, what is the proword used to make it correct?
6. What is the difference between the prowords **FIGURES** and **I SPELL**?
7. How is **RADIO SILENCE** initiated and how is it canceled?
8. When are prowords **WAIT** and **WAIT OUT** used?
9. When is the proword **WILCO** used and what is the definition?
10. When is the proword **WORDS TWICE** used?

**SECTION 9                    AIR FORCE MARS NETWORKS**

1. What nets are restricted?
2. What do the following Net Designators indicate?  
2TM1, 4IM1, J0G

**SECTION 10                  NET OPERATIONS**

1. For what purpose are **SINGLE CALL** and **COLLECTIVE CALL** used?
2. Why would the proword **DO NOT ANSWER** be used?
3. What are the requirements/procedures for answering calls?
4. When should a **RADIO CHECK** be given?
5. Are **FAIR** or **MEDIUM** acceptable signal strength indicators?
6. What is the process for changing frequencies?

**SECTION 11                  NET CONTROL STATION, (NCS)**

1. Who determines the use of **ANCS** and what is the procedure for appointing one?
2. What **TOOLS** should an NCS employ?
3. For what purpose is the 30 minutes before net time used by the NCS?
4. If no NCS is present at the time of a net, using your call sign, demonstrate the process used?
5. Can military stations use AFMARS nets? If so, what call signs might they use?
6. If stations are partially heard, what processes may be employed to check them in?
7. In what order should traffic be handled?
8. How often should the NCS make net calls?
9. What guidelines are suggested for **CONTINUITY CHECKS**?
10. What process is employed to change frequencies?