Military Auxiliary Radio Service
National Training Manual

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PREFACE

AIR FORCE MARS

To: All new members, /T calls

You have been accepted into an elite organization that is tasked with providing emergency communications support for the United States Air Force and other Government Agencies, which include the Federal Emergency Management Agency (FEMA), the Shared Resources (SHARES) HF radio program, and other agencies of the Department of Defense and U.S. Government.

The opportunities offered by MARS for you to serve in public service support are limited only by your willingness to participate in the many programs that make this a unique organization.

Examples of some of the services offered by MARS are:

1. Dispatch of health, morale and welfare traffic to and from military service personnel worldwide.

2. Disaster communications support for federal, state and civilian governmental agencies and other disaster relief organizations when requested.

3. Engineering and technical support in all communications systems to continue state-of-the-art readiness status.

4. Management training for local military base support positions.

   Air Force MARS utilizes both voice and digital modes.

   You will first be trained to use the correct radiotelephone procedures required for communications support of military and allied national forces. Additional training is available for those members that desire to use digital capabilities.

After you have completed your initial training assignment you will then be re-assigned to the traffic net system in your MARS Division. This will be your primary assignment but you may participate in as many nets of the Air Force MARS program as you desire (excepting special assignment nets).

The expansion of your own horizons through your association with Air Force MARS and the members of this organization are limited only by your desire and capability.

Operations on USAF MARS is governed primarily by: Allied Communications Publications listed on http://jcs.dtic.mil/j6/cceb/acps/ and Air Force MARS Operating Instructions. Primarily of interest in the ACP series are:
1) **ACP 121(I)** - Communication Instructions – General
2) **ACP 124(D)** - Communications Instructions - Radiotelegraph Procedures
3) **ACP 125(F)** - Communication Instructions - Radio Telephone Procedures
4) **ACP 126(C)** - Communication Instructions - Teletypewriter (Teleprinter) Instructions
5) **ACP 131(F)** - Communication Instructions - Operating Signals

Of the above, item 3) is the most necessary to become familiar for operating nets. Item 5) is particularly comprehensive in terms of the Q-code and Z-code (which are used in digital transmissions) but has many more codes than are required for use in regular MARS activities. Item 4) has some useful guidelines for digital communications that remain applicable for modern digital modes despite being written for RATT (the military abbreviation for RTTY).

It is not the intent of this guide to cover all the material in these governing documents. It is the intent of this guide to cover the most salient and important aspects of those documents.

**NOTE:** Documents are not attached to this training guide but rather links to the original documents. This reduces the paper burden of printing out this document if desired and also allows the user to always reference the most up to date copy of the documentation. Note also that this document is a living document and will be updated and augmented during the year.
1. CHAPTER 1 — TRAINING REQUIREMENTS

1.1. Introduction
When you received your MARS station license and call sign assignment, you became a licensed MARS operator. You will be operating your amateur station on military frequencies, so a brief period of training is required to help you become familiar with MARS procedures. As a MARS volunteer you are essentially agreeing to operate your station, for a minimum of 12 hours each calendar quarter, on the established MARS networks. Nine of these hours must be on your Primary Assignment. While you are in training, your primary assignment is Training. The additional hours may be accrued on any Region or Division or State net. You should participate in (check in to) your State Administrative and the Region and Division Administrative Nets. When you have completed training almost all MARS nets will be open to you. While you are in training, your primary assignment is Training. The training assignment is temporary. When you complete training, you will receive a permanent assignment and the time requirement will then apply to that assignment.

1.2. Completion of Training
You are encouraged to complete training as soon as possible. There is no minimum time for training; however, you must complete your training within 180 days of the date on the AF Form 3661 which assigns you to training. When you feel that you are familiar with on-the air MARS procedures, you may demonstrate this by sending at least two “Drill” messages to your trainer. One of these messages must be an Exercise EEI. You are strongly encouraged to use a digital mode for one of these messages. Upon successful completion of these drill messages, you will be required to complete a “final examination” consisting of 50 questions. A score of 85% or better is required. You will also need to complete NCS training and demonstrate your capability as an NCS before you are released from training. Please note that ideally NCS training should be conducted purely on a dedicated training net; if it is conducted on a regular net, then an experienced ANCS should be supervising and should immediately assume control of NCS duties and relieve the trainee of both NCS and ANCS duties should urgent traffic suddenly appear on the net. This is to ensure that urgent emergency traffic can be passed correctly and accurately while a trainee is still in training. It is also highly recommended that members should take the following four FEMA courses: IS-100.a, IS-200.a, IS-700.a and IS-800.b, as a minimum set. The FEMA ISP course list may be seen at http://training.fema.gov/is/crslist.asp?page=all and the courses may be taken on-line. Each one concludes with an open-book blind test set of questions and, on passing, you will be given an electronic certificate in PDF form, a copy of which should be sent to your State MARS Director. Your Divisional Training Manager and your State MARS Director will determine when you have successfully completed training. This is to provide some
flexibility to accommodate different Regions needs and individual background. Divisions may augment the recommended training to accommodate divisional needs as they see fit.

1.3. Training on USAF MARS procedures
Training on USAF MARS procedures is necessary even though you may be an experienced operator since MARS procedures are based on military procedures rather than amateur radio procedures. These MARS procedures have been developed over the years to facilitate rapid communications while emphasizing accuracy. All three MARS services have agreed to use a common procedure in order to allow for interoperability among the services. Trained USAF MARS operators are welcome to participate in Army or Navy/Marine-Corps MARS nets. If you choose to participate in nets of the other MARS services, be certain to observe and follow any unique policies and/or procedures you may observe.

1.4. Training Nets
In most Regions and Divisions, training nets are held on the Division frequency at regularly scheduled times. The schedule for training nets should have been provided to you along with the AF Form 3661 which assigned you to training. You may contact your Region or Division Training Director with any questions about the scheduled training nets. Other opportunities to receive training in a classroom situation may be made available to you. Information on these opportunities is provided by your Region or Division Training Director.

1.5. Participation Time Requirements
As a MARS volunteer operating on USAF frequencies, you have essentially agreed to donate your time and equipment in support of the USAF MARS mission and to participate for a minimum time each calendar quarter. To successfully operate on the Air Force networks, you will need to learn the prowords, net procedures, message format and message handling techniques that are unique to MARS. The goal of our training is to develop a system of skilled and active radio operators who can provide expertise in achieving our “Primary Mission”.

1.6. Arranging prolonged period of inactivity
NOTE. Directives regarding prolonged periods of inactivity are quite clear. If at any time you find that you cannot meet minimum participation requirements, notify your State MARS Director or Net Manager of the duration and reason for your inactivity. Arrangements for extensions of time are easy to make if those arrangements are made before your membership is in jeopardy, but the responsibility for notifying the proper officials rests with you.
2. **CHAPTER 2 — MARS OVERVIEW**

2.1. **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 U. S. 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. Army Amateur Radio 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 Auxiliary Radio System (MARS). In 1962, the Navy and Marine Corps MARS program was started.

2.2. **Mars Mission**

The Mission of the MARS program is (as per the MOI 1.1.1.) to provide:

2.2.1. **Department of Defense**

Provide contingency radio communications support to U. S. Government operations through the utilization of 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 Directives 5111.12. It is also to provide contingency radio communications support to the DoD Components.

2.2.2. **Emergencies**

Assist in effecting normal communications under emergency conditions; MARS may provide communications engineering services and technical support and additional communication capacity to military units in training or responding to an actual event, on frequencies identified for MARS use and through MARS Nets.

2.2.3. **Morale Traffic**

Handle health, morale and welfare radio communication 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.

2.3. **Program Emphasis**

The emphasis of the program has moved from one to another of these objectives over the history of the program. For example, during the Viet Nam era, MARS was very heavily involved with passing morale messages and phone patches between deployed military and their loved ones. That function has largely been taken over by the internet and cell phones. 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.

2.4. STRUCTURE AND ORGANIZATION

2.4.1. Background
Air Force MARS is a communication system made up of amateur radio operators who are trained to provide an emergency back-up for the USAF Communications Command. This is the primary mission. Even though we engage in other activities, these activities are all intended to support the primary mission either directly or indirectly.

2.4.2. Geographic Organization
For administrative and communication purposes, USAF MARS is organized by geographic units. States are grouped into Regions: Regions into Divisions. The Divisions are linked by Transcontinental Nets: (TRANSCON) Voice, TRANSCON DIGITAL (Sound Card Modes) and TOR BBS system. The transcontinental, Division and Region nets are managed by MARS members on both the evening and daytime nets as well as on the weekends. At the Region level, MARS members will receive the traffic for direct delivery to the addressee, relay to other MARS channels or re-file into the Amateur Band. Each relay is expected to move the traffic closer to its final destination until delivery by local telephone is possible. Since this is not always possible, we rely on member’s dedication and ingenuity to devise methods of delivery. Forwarding by radio is encouraged, so a process for re-filing messages into the Amateur Band to be delivered by the National Traffic System is authorized. This re-file process is explained in Chapter 7.
2.4.3. **Routing of Traffic**
Traffic originating locally will be routed in the reverse order. Traffic destined for a state in the same Region or Division as its origin will be passed on Division nets but traffic for another Division must be routed into the TRANSCON network for relay into the Division of destination or the Division of the proper gateway station.

2.4.4. **State Admin Nets**
State Admin nets are conducted on the Division frequencies for administrative purposes so members may have contact with their State MARS Directors. While these nets are open to all members in a Division, the primary purpose is for state administrative business. Traffic may be passed on the state nets when all state business has been completed.

2.4.5. **Participation in other MARS Networks**
You are encouraged to participate in all the MARS Networks, but keep in mind that while you are in training, you are restricted to State, Region and Division traffic and administrative nets. The Administrative nets, the Division or Region Training nets and your own State Administrative net should provide you with current information.

2.4.6. **U.S. Air Force MARS Program Administration**
The total MARS program is administered through the office of Chief USAF MARS at HQ AFCA at Scott Air Force Base, IL. MARS management is through the State MARS Directors (SMD) and
Region MARS Director (RMD) and Division MARS Director (DMD). SMD, RMD and DMD are MARS member positions appointed by Chief USAF MARS. Each DMD and RMD appoints a staff of Division and Region Officials who help with various activities. Division and Region Officials are authorized specific “billet call signs” that may be used while conducting activities related to the duties of their office. Each SMD may appoint a staff of State Officials to help with various aspects of state-level activities. State-level appointments do not normally authorize a specific “billet call sign”. In addition to the Division, Region and state officials there are a few “National” Officials who have duties which are CONUS wide and are authorized the use of certain billet call signs. (See page 2-3 for a partial listing of billet call signs authorized for Division, Region and National Officials.)

2.5. CALL SIGN ASSIGNMENTS

2.5.1. Completion of Training
After training is completed, each MARS member is assigned a personal call sign that will remain with the member as long as the member resides in the original region. The “/T” suffix in your present call sign will be dropped to form your permanent call sign. e.g. AFA3AA/T becomes AFA3AA etc. If a member is appointed to an official position he will receive an additional call sign that will remain with the member for the duration of the appointment. The numeral in a call sign indicates the Region of residence licensing. If you should hear any Military Base MARS stations, they are assigned the prefix AGA, the Region numeral and a suffix that reflects the abbreviation of the base. e.g. AGA6TI (Tinker AFB, OK) AGA9TR (Travis AFB, CA) etc. The exception to this is AGA5HQ which is the call sign assigned to the USAF MARS Headquarters station.

2.5.2. Partial List of Official Call Signs and Duties
Here is a partial list of representative Official Call signs and duties. The “#” will be a single numeral indicating the MARS Region of residence. The “aa” indicates the Division (NE, SE, NC, SC, NW or SW. The “ss” is the 2-character US Postal Service state abbreviation.)

2.5.2.1. Division Officials
AFN#aa -Division MARS Director
AFD#aa -Deputy Division MARS Director
AFE#DM -Division Digital Manager
AFE#EC -Division Emergency Communications (ECOM) Coordinator
AFE#RM -Division Records Manager AFE#XC -Division Exercise Coordinator
AFF#VF -Division VHF Repeater, Digital Network & Voice Operations Coordinator
AFE#WM -Division Webmaster

2.5.2.2. Region Officials (Regions 1,2,3,5,7,8,10 only)
Regions 4, 6 and 9 are single-region Divisions so do not have Region Officials.
AFN#RD - Region MARS Director
AFD#RD - Deputy Region MARS Director
AFF#EC - Region Emergency Communications (ECOM) Coordinator

2.5.2.3. State Officials
AFF#ss - State MARS Director
AFD#ss - Deputy State MARS Director
AFE#ss - State Emergency Coordinator

2.5.2.4. National Mars Officials
AGA5C - Chief USAF MARS
AFN#LE - National ALE Coordinator
AFN#TS - National Technical Services Manager
AFN#EC - National Emergency Coordinator
AFN#PP - National Phone Patch Manager
AFN#TM - National Training Manager
AFN#DM - National Digital Manager
AFN#VN - National HF Voice Net Manager

This is not a complete list but should give you some idea of the system and will help you recognize officials and their duties when you hear these call signs on the air.

2.5.3. Network Call Signs
Networks are assigned distinctive call signs or net designators which identify the geographic coverage, type of net and the mode of communication.

NOTE: All USAF MARS high frequency voice nets operate on upper sideband.

2.5.3.1. Transcon & National Nets

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<tr>
<th>Net Call Sign</th>
<th>Description</th>
<th>Mode</th>
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<tr>
<td>TRANSCON</td>
<td>TRANSCON National Voice Net</td>
<td>USB</td>
</tr>
<tr>
<td>TDN</td>
<td>TRANSCON Keyboard-to-Keyboard Digital</td>
<td>Sound Card Digital Modes – Usually MFSK16</td>
</tr>
<tr>
<td>TRANSCON Multi-Mode Net</td>
<td>TRANSCON Multi-Mode Net</td>
<td>Net opens in USB and may switch to MT63 or other digital modes</td>
</tr>
<tr>
<td>MSN</td>
<td>Mission Support Net</td>
<td>Restricted Net only open to specially approved members.</td>
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Note that the Mission Support Net (MSN) is a restricted net that replaces the previous 
TRANSCON Space Support Net. As a restricted net, the MSN only allows registered members to 
sign in to the net. Registered members must have Mission Support Net listed as either a 
Primary Net or a Secondary Net 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 
Admin 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 Net.

2.5.3.2. Division Traffic Nets
Network Call Signs for Division Traffic nets are of the format AA\text{m}\# where AA denotes the 
Division (NE, SE, NC, SC, NW or SW); m denotes the mode (S for USB, M for Mixed mode, D for 
Digital or F for FM) and # denotes net number

EXAMPLES:
NEM1 = Northeast Division Multi-Mode Traffic Net #1
NCD1 = North Central Digital Keyboard-to-Keyboard Traffic Net #1
NWS1 = Northwest Division SSB Voice Traffic Net #1

2.5.3.3. Other Division Nets
Network Call Signs for other Division nets are of the format AAT\text{m}\# where AA denotes the 
Division (NE, SE, NC, SC, NW or SW); TT denotes the net type (AD for Administrative Net, EC for 
ECOM Net, TG for Training Net, TS for Technical Service Net, or XC for Exercise Net); m denotes 
the mode (S for USB, M for Mixed mode, D for Digital or F for FM) and # denotes net number

EXAMPLES:
NEADS1 = Northeast Division Administrative SSB Voice Net #1
NETSS1 = Northeast Division Technical Services SSB Voice Net #1
NETGS1 = Northeast Division SSB Voice Training Net #1
NETGS2 = Northeast Division SSB Voice Training Net #2
NWTGD1 = Northwest Division Digital Training Net #1
SCXCM1 = South Central Multi-Mode Exercise Net #1
SCECM1 = South Central Multi-Mode ECOM Net #1

2.5.4. Region Nets
Network Call Signs for Region nets are of the format R\text{Tm}\# where R denotes the Region (1 
through 0); TT denotes the net type (AD for Administrative Net, EC for ECOM Net, TG for 
Training Net, TS for Technical Service Net, or XC for Exercise Net); m denotes the mode (S for 
USB, M for Mixed mode, D for Digital or F for FM) and # denotes net number
EXAMPLES:
4ADS1 = Region Four SSB Voice Administrative Net #1
4TGS1 = Region Four SSB Voice Training Net #1
4TGM1 = Region Four Multi-Mode Training Net #1
6ADS1 = Region Six SSB Voice Administrative Net #1
6TSS1 = Region Six SSB Voice Technical Services Net #1
6TGM1 = Region Six Multi-Mode Training Net #1

2.5.5. State Nets
Network Call Signs for State nets are of the format RSSm# where R denotes the Region (1 through 0); SS denotes the two character postal code; m denotes the mode (S for USB, M for Mixed mode, D for Digital or F for FM) and # denotes net number

EXAMPLES:
3VAS1 = Virginia State SSB Net #1
2NYS1 = New York State SSB Net #1
1VTF1 = Vermont State FM Voice Net #1
4ALS1 = Alabama State SSB Voice Net #1
5WIM1 = Wisconsin State Multi-Mode Net #1
6NMD1 = New Mexico State Digital Net #1

This is a partial list of the various Networks and activities, but should give you an idea of the system used for network call sign assignments.
3. CHAPTER 3 — BASIC PROCEDURES

3.1. Introduction
As you begin your activity in MARS there are a few basic procedures that will become evident. All USAF MARS nets are directed nets. i.e. they are directed by a net control station and set procedures will prevail. Initial transmissions will contain your call sign at the beginning. After the initial call between two stations, call signs may be dropped (note that your call sign must always be repeated every 5 minutes) unless confusion is likely to arise by so doing. Administrative, training, and technical nets are often conducted informally. Traffic nets however, are always conducted formally, because this reduces verbiage and makes the net more efficient in terms of traffic passage. The term ‘informal’ refers to the use of first names and a few more relaxed procedures that will become evident as you monitor the various nets.

3.2. Formality
Formality will always be maintained during the following procedures—
1. When checking into a net.
2. When initially establishing contact. (Both when calling a station and when answering a call.)
3. When receiving a message.
4. When sending a message.
5. When answering Roll Call.

3.3. Informality
Informality may be allowed on a traffic net when the NCS has given permission for an “informal”. This will allow informal comments between members on the net. Generally informal procedure will be allowed only after all of the traffic that can be passed, has been passed. Typically, informal comments are only passed during a FREE net. During a FREE net (where stations do not have to ask permission of the NCS and may call another station directly), a station may exchange informal comments with another station with the following limitations:
1) All comments must, in some way, relate to MARS business or the mission of MARS;
2) Comments need to be brief, consistent with clarity.
3) Stations must pause (releasing the pressel, that is unkeying the microphone) between turnovers in transmission to allow for another station to break in.
4) NCS may interrupt an exchange at any time and stop the exchange by calling a directed net.

3.4. Ending of Transmissions
IMPORTANT: Every transmission, whether formal or informal, ends with either of the two prowords— OVER or OUT but never both.
3.4.1. **The Proword OVER**

OVER means that you are expecting a reply and is the signal to the other station indicating that he may transmit without interference.

3.4.2. **The Proword OUT**

OUT means that this is the last transmission of an exchange and no reply is necessary. When one station says OUT, that is the end of an exchange and the other station should not add another OUT. If there is more to be transmitted, you must re-establish contact by the calling method explained in the next section of this guide.

3.5. **MARS Communications Protocols**

MARS Communications are generally “Point-to-Point”, or one station communicating with another, one at a time. Authorized exceptions to this rule are: Net Control Stations when making net calls, and stations sending bulletins. Round table discussions are not allowed on the MARS circuits. If you must communicate with more than one station, you must say “OUT” when you have completed with one and then establish contact with the next station. After you have had a chance to monitor a few nets, you will see that this is not as complicated as it sounds. For years the above procedures have proved to contribute to effective and efficient communications. They are not intended to be restrictive and we continue to use them because not only are they mandated by our governing documents but they work well.
4. CHAPTER 4 — CALLING AND ANSWERING PROCEDURES

4.1. Preliminary Calls

A “preliminary call,” sometimes referred to as simply a “call,” is made to initiate a contact. An “answer” is a reply to a call. There are three types of preliminary calls; a single call, a collective call (also known as a group or net call), and a multiple call. Examples of each of these are as follow:

4.1.1. Single Call
One station calls another station to initiate communications. Example: AFA1AA, THIS IS AFA1BB, OVER

4.1.2. Collective Call (or Net Call or Group Call)
One station (such as a Net Control Station) calls a groups of stations collectively. A preliminary call to open a net is an example. Example: NEM1, THIS IS AFA1XX (NCS), OVER. Sometimes, “Limited Collective Calls” may be used, where the NCS may call for only part of the whole group. Example: NEM1, THIS IS AFA1AA, STATIONS WITH TRAFFIC, OVER. In that case, the NCS expects to hear only answers from stations with traffic.

4.1.3. Multiple Call
One station calls a number of specified stations. Example: AFA1AA, AFA1BB AND AFA1CC, THIS IS AFA1XX, OVER.

4.2. Answering a Preliminary Call

When answering a preliminary call, a MARS operator will use either “Full Procedure” or “Abbreviated Procedure.”

4.2.1. Full Procedure
Full procedure means the transmission begins with the call sign of the station to whom the answer is directed. Example: AFA1BB THIS IS AFA1AA, OVER.

4.2.2. Abbreviated Procedure
Abbreviated procedure means the transmission begins with the proword THIS IS followed by the call sign of the station transmitting. Example: THIS IS AFA1AA, OVER. Usually, abbreviated procedure is used to answer a Single Call (including continuity checks) and Multiple Calls. In the case of Multiple Calls, the stations answering should answer in the order in which they were called. A net control station may direct stations to “USE FULL PROCEDURE” if he/she feels it necessary or desirable. In such case, of course, stations will follow the directive of the NCS and use full procedure. If communications conditions are difficult, a station
answering a single call may find it desirable to use full procedure to answer as a way of confirming his/her understanding of who was calling. However, because of the extra airtime involved, this use of full procedure should be limited.

4.3. Checking Into Nets Requires Full Procedure

Full procedure (with phonetics) will be used when checking into nets unless directed otherwise by the Net Control Station. Example: (for the Collective call by the NCS) SCS1, SCS1, THIS IS ALPHA, FOXTROT ALPHA ONE ALPHA ALPHA, OVER, the answer using full procedure) would be:

AFA1AA, THIS IS ALPHA FOXTROT ALPHA ONE X-RAY X-RAY SLANT TANGO, NO TRAFFIC, OVER.

And the NCS response would be:

ALPHA FOXTROT ALPHA ONE X-RAY X-RAY SLANT TANGO, THIS IS ALPHA, FOXTROT ALPHA ONE ALPHA ALPHA, ROGER, OUT

(Note the use of phonetics for your own call sign when initially checking into a net. If you feel it is necessary to prevent confusion, or that conditions are poor you may elect to use full phonetics for the Net Control’s call sign as well as for your call sign.)

4.4. After Communications are Established, use Abbreviated Procedure

Once communications have been established between two stations, both should use abbreviated procedure until the communications is concluded. Example: (preliminary, single call using full procedure): AFA1AA, THIS IS AFA1BB, OVER

(answer using abbreviated procedure): THIS IS AFA1AA, OVER

(communications): THIS IS AFA1BB, REQUEST YOU DO ....

(communications): THIS IS AFA1AA, WILCO, OUT.

4.5. Abbreviated Procedure is Not the same as Abbreviated Call Signs

Caution: Do not confuse “abbreviated procedure” with “abbreviated call signs.” Abbreviated call signs, such as AA for AFA1AA, are not authorized in USAF MARS.
5. **CHAPTER 5 — NET OPERATIONS**

5.1. **Authorized Nets**

5.1.1. **Nets Authorized while in Training**
Current directives allow stations in training to participate only in State, Region and Division nets. Once training has been completed, there are numerous networks available. In addition to the various State, Division and Region nets, MARS stations that have completed training are authorized to participate in the various transcontinental nets. (TRANSCON Voice, TRANSCON CW, TRR and TVRS digital Nets). There are a few restricted nets such as overseas Phone Patch Net or Mission Support Net. Membership on phone patch nets or the Mission Support Net is by special appointment through your SMD and the special net managers.

5.2. **Directed Nets**
All USAF MARS nets are directed by a Net Control Station (NCS). You will be able to identify the purpose for a net, the call sign of the NCS and the mode of transmission by the Collective Call being used. e.g. NCS1 THIS IS AFA3AA OVER (North Central Division Traffic Net) 3TGS1 THIS IS AFF3TO OVER (Region 3 Training net) 3ADS1 THIS IS AFN3RD OVER (Region 3 Administrative net) 3ILS1 THIS IS AFF3IL OVER (Illinois Admin. net) 3KSF1 THIS IS AFA3IU OVER (Kansas VHF Net on FM Voice)

5.2.1. **How to Check In**
It is essential that every station, before transmitting, listen carefully to avoid doubling. Key down, state the NCS call sign, let up momentarily to again be sure of no doubling, and then complete the transmission if the frequency is clear.

5.2.1.1. **Answers to a Collective Call**
When you check in to a net, you are answering a collective call made by the NCS. Here are some examples of answers to that call. AFA1BB<TPAUSE> THIS IS AFA3AA/T NO TRAFFIC OVER AFA2CC<TPAUSE> THIS IS AFA2PO ONE ROUTINE AFA4AA OVER AFA4DD<TPAUSE> THIS IS AFA4CC ONE PRIORITY AFA5CC, ONE ROUTINE SEATTLE OVER

5.2.1.2. **Initial Check In and Phonetics**
On your initial call to check in to a net always use full phonetics for the NCS call sign and your call sign. On subsequent calls, after the NCS has you on his/her roster, phonetics are not necessary. The use of phonetics is sometimes still advisable to prevent misunderstanding when propagation is poor or the frequency is noisy. As a new member in
training checking in to a training or admin net you would say— (NCS call sign) <pause> THIS IS (Your call sign) (traffic status) OVER

e.g. AFA5EE<pause> THIS IS AFA5AA/T NO TRAFFIC OVER

If you have comments or queries, you would state that in your check in — (NCS call sign) <pause> THIS IS (Your call sign) (Comment or Query status) OVER

e.g. AFA6FF<pause> THIS IS AFA6AA/T WITH QUERIES OVER

After completing your call to check in, listen carefully to be certain that the NCS has recorded your call sign correctly. Your credit for participation is dependent on this and the NCS will report your time to a Net Manager who will in turn report to the Region or Division Records Manager.

5.2.2. **Net Activity**

After you have checked into a net, you are expected to remain available to the net for any traffic that might be destined for your immediate area. You will be listed on the NCS log and should remain available until the NCS closes the net. If you need to leave the frequency early, call the NCS and request to CLOSE. Once you are checked on to a net you can gain the attention of the NCS with the abbreviated call. “THIS IS (Your call sign) OVER”. The NCS will answer with a full preliminary call using your call and his. When contact is established, make your request known to the NCS; e.g. AFA6AA THIS IS AFA6BB/T REQUEST TO CLOSE OVER

5.2.3. **Net Continuity Check (Roll Call/Radio Check)**

On most nets, of one hour or more in duration, the NCS may hold a Net Continuity Check. The purpose of the Net Continuity Check is to ascertain propagation conditions between the NCS and those stations checked into the net. The net continuity check consists of a roll call of the stations checked in. Your response will be a Radio Check. (MARS term for signal report). The NCS will announce that a Roll Call will follow and then proceed calling each station by their call sign only. Stations will answer with an abbreviated call and a Radio Check: e.g.

THIS IS AFA3AA, LOUD, CLEAR, OVER

Other Radio Check reports might be— GOOD READABLE, WEAK READABLE, WEAK BARELY READABLE, WEAK UNREADABLE

**Note:** Do not include phrases such as “I have you”, “You are”, “Your signal is”, etc. Do not say “Loud and Clear”, just “Loud Clear”. Brevity saves time as the word “and” is superfluous in the above usage.
Roll Calls are held at the discretion of the NCS but usually not more than once an hour. On traffic nets of two hour duration roll is called approximately 5 minutes into the second hour. If the NCS for a one hour net chooses to make a Roll Call, this Roll Call will usually be at the half-hour, but may commence at 10 minutes prior to closure of the net. The NCS can choose the time to conduct a roll-call.

When the NCS has completed Roll Call, the NCS may, at his/her option, attempt to contact any stations who did not respond during the Roll Call.

Stations who do not respond to the Roll Call will be shown as closed on the NCS log and unresponsive stations will no longer be considered to be checked into the net.

5.2.4. Free Net vs. Directed Net

A “Free Net” is a time when you may transmit without the permission of the NCS, as long as you are already checked in to the net. During a directed net the NCS may declare the net “Free” using the proword THIS IS A FREE NET. At this time you may call any station on the net without first obtaining the permission of the NCS. All MARS procedures will still be used. The only thing that has changed is the need to contact the NCS first. The net will remain FREE until the NCS declares the net to be directed by using the proword THIS IS A DIRECTED NET or if the NCS makes another Collective Call (Net Call). This Collective Call automatically puts the net back to a directed status and will remain so until the NCS declares that it is FREE. If you are unsure as to whether the net is free or not, the safe procedure is to assume that the net is directed, and ask permission of the NCS to contact the station. At certain times when a frequency is not in use and there is no net in progress, members may use the frequency to contact other MARS members if there is a valid reason to communicate. This is sometimes referred to as “FREE TIME”. If you plan to use one of the MARS frequencies, make certain that there is no net in progress and that you use the frequency for MARS related business only. While you may hear some friendly chatter from time to time, the MARS nets should not be used for casual “Rag Chewing”. MARS frequencies are Military Frequencies and are not Amateur Bands. If you are in doubt as to whether or not a net is in progress, use the regular check in procedure and a NCS should answer you if there is a net.
6. CHAPTER 6 — MESSAGE FORMAT

6.1. Plaindress Message Format

The “Plaindress” message format used in MARS is simply a plain language form which is not encrypted or coded. This format contains three sections: a HEADING, a TEXT and an ENDING. Each of the sections is separated from the others with the proword BREAK. Many messages will have nothing in the “Ending” section.

The HEADING gives the precedence and time of the message as well as the sender and addressee of the message as well as the count of words in the message.

The TEXT is the body of the message containing the information from the original sender to the addressee.

The ENDING, although not always used, is provided for any additional information dealing with relay instructions or delivery information needed to help move the message through the system.

6.1.1. Heading

The HEADING is divided into 4 components.

1. The Beginning Procedure
2. The Preamble
3. The Address (Both From and To)
4. The Prefix (Group Count)

6.1.1.1. The Beginning Procedure

Sometimes called “the Procedure” consists of a Preliminary Call and the message serial number. Serial numbers begin with 1 and the count restarts each month.

e.g. AFA3AA THIS IS AFA3BB NUMBER SEVEN. This is the call sign of the receiving station, the call sign of the sending station and the message number assigned by the sending station. As this message is relayed through the MARS system, the Procedure is the one-and-only part that changes on each relay.

6.1.1.2. The Preamble

The Preamble consists of the Precedence Proword (MARSGRAM, ROUTINE, PRIORITY or IMMEDIATE) followed by the proword TIME and the Date/Time Group (DTG). Note that the use of precedence level of IMMEDIATE is highly restricted. The precedence level of FLASH is not authorized for MARS use. The DTG is composed of the six digit origination time (2 digit day, 2
digit hour and 2 digit minutes); the zone indicator (always Z – spoken as ZULU); the month; and the 4 digit year.

e.g. R 012215Z JUNE 2012

Spoken as: ROUTINE TIME ZERO ONE TWO TWO ONE FIVE ZULU JUNE TWO ZERO ONE TWO

The first two numbers indicate the day of the month, the next two the hour and the last two the minutes. The letter “ZULU” at the end of the numbers indicates (Universal Time Coordinated).

All official time keeping is done in UTC on the basis of the 24 hour clock. The Date/Time group is used as the reference identifier for all messages and is assigned by the Originating MARS Station at the time the message is introduced into the system.

This is the complete address of both the Originator and the Addressee.

The Address starts with the proword “FROM” followed by the originator’s name and address. Some confuse the terms “originator” and “originating station”. The “Originator” is the person or entity for which the message is being sent. The “originating station” is the MARS station entering the message into the MARS system. The originator and the originating station are the same when a MARS operator is sending a message on his/her own behalf; but, they are different when a MARS operator sends a message from a third party. If the Originator and the Originating Station are different, then the call sign and location of the Originating station appears after a “Slant Bar” (/). In voice procedure this is sent as SLANT at the end of the FROM section of the ADDRESS.

The complete address of the addressee is preceded by the proword “TO”. This address must be complete enough to make delivery a simple matter for the final MARS station in the relay chain. Telephone numbers should be included in all addresses.

6.1.1.3. The PREFIX (Now Optional in USAF MARS)

The Prefix is simply the “Group Count” which is a number that reflects the number of words or groups in the text of a message. The group count is preceded by the proword GROUPS.

Message texts are usually kept to 25 words or less, written 5 words per line on transmission and reception forms to facilitate counting. Messages may also be sent without a group count. In that case, the proword “GROUP NO COUNT” will be used instead of the proword GROUPS. This process should be used with judgment. When the group count is eliminated, a valuable check for accuracy has been lost.

6.2. The Text

The Text is the “body” of the message. It is the information being sent from the originator to the addressee. The proword BREAK indicates separation of the text from the heading and ending. BREAK appears at the beginning of the text and at the end of the text. This is the only
way the proword “BREAK” is used. If you hear it used in place of “OUT”, consider it an error in that operator’s procedure. Each plain language word, each initial or group of initials, each numeral or group of numerals is counted as one group in the GROUP COUNT. Hyphenated words are counted as one group and are always spelled out for clarification. (More details on this are in the next section of the guide).

6.3. The Ending
In our present format there is generally no ending. However, this section is provided to allow any “Operators Note” such as comments by any relaying operator who may have any observation concerning the message. If an operator’s note is added along the relay chain, then it should be sent along with the message on each subsequent relay.

6.4. Abbreviated Plaindress Message Format
Operational requirements for speed of handling may require abbreviation of plaindress headings. In such case, any or all of the following may be omitted: (1) Precedence, (2) Date, (3) Date-time group, (4) Group count. The Abbreviated format is a very valuable tool to be used during emergencies when stations are in direct communication with each other and the expedient passage of traffic is a requirement.

A message in abbreviated form will contain, at the very least, an address and a text. If the originator and the addressee are MARS stations and they are in direct communication with each other, then this highly abbreviated form may be used. If there is any intermediate relay station involved, the DATE/TIME group must be used in case that message needs to be identified at a later time (The date/time group and the call sign of the originating station are always used to identify a message.)

The message number, precedence and group count may be eliminated if the message is between MARS stations and this elimination causes no confusion. Third party health and welfare messages will not be abbreviated.

6.4.1. Important Reminder
Once a MARS message has been introduced into the system, the operator at the originating station is responsible for the content of the message and nothing following the Beginning Procedure may be changed in the message by any relaying station or operator. If a mistake is apparent, this may be pointed out in an Operators Note in the ending section. If an operator’s note is added to the original message, it should remain with the message until delivery to the addressee.

6.5. Sample Message
6.5.1. Voice Format
Military Auxiliary Radio Service
Training Manual

Beg. Procedure { THIS IS AFA3BB MESSAGE NUMBER ONE }
Preamble       { ROUTINE TIME ZERO FOUR ONE NINER THREE ZULU JUNE WUN NINER NINER FIVE }
Address       { FROM SGT. William Smith 4th Infantry Btn. Ft. Sill, Ok 73503 /AFA4XX OK
TO Mr. & Mrs. Joseph Smith 11512 S. State { Chicago, Il 60691 302-921-0078 }
Prefix      { GROUPS ONE SIX }
BREAK
Text { Enjoying new assignment. Will write long letter explaining new duties. Hope to see you soon. Bill.}
BREAK
Ending { OP. Note: Do not attempt delivery before 5 PM Chicago time.}

6.5.2. Digital Format
Here is the same message as sent by digital means (AMTOR, PACTOR Packet, MFSK, MT63 or Sound Card, etc.

Beg. Procedure { DE AFA3BB NR 1 }
Preamble       { R 041930Z JUNE 1995 }
Address       { FM SGT. WILLIAM SMITH 4TH INF BTN FT. SILL OK 73503 /AFA6XX OK
TO MR AND MRS JOSEPH SMITH 1512 S. STATE, CHICAGO IL 60691, PH 302-921-0078 }
Prefix      { GR 16 }
BT
Text { ENJOYING NEW ASSIGNMENT. WILL WRITE LONG LETTER EXPLAINING NEW DUTIES.
HOPE TO SEE YOU SOON. BILL.}
BT
Ending { OP. NOTE: DO NOT ATTEMPT DELIVERY BEFORE 5 PM CHICAGO TIME.}

6.5.3. Digital Format – without explanation of sections
This is how the digital format looks without the section explanations:

DE AFA3BB NR 1
R 041930Z JUNE 1995
FM SGT. WILLIAM SMITH 4TH INF BTN FT. SILL OK 73503 /AFA6XX OK
TO MR AND MRS JOSEPH SMITH 1512 S. STATE, CHICAGO IL 60691, PH 302-921-0078
GR 16
BT
ENJOYING NEW ASSIGNMENT. WILL WRITE LONG LETTER EXPLAINING NEW DUTIES.
HOPE TO SEE YOU SOON. BILL.
BT
OP. NOTE: DO NOT ATTEMPT DELIVERY BEFORE 5 PM CHICAGO TIME.
K
NNNN

6.5.4. Messages via Voice

It can be seen that the digital format is the best way to write out a message prior to sending via voice as well, as it has all the relevant pieces and it is relatively simple to read out the digital form for transmission by voice. Not however, that passing a message by voice is usually faster (requiring less repeats) if the transmission is slowed down to a natural cadence but at about 12-14wpm, and never above 20wpm. This means speaking slowly with pauses at the right points.
7. CHAPTER 7

7.1. Message Handling

When sending or receiving messages, keep in mind that information to be written down and prowords are the only things to be transmitted. If you will make some copies of the MARS MESSAGE FORM and keep them at your operating position. It will make both sending and receiving traffic very simple. The message form has spaces for five words per line for a maximum of five lines for the message text. This makes it easy to count the number of words. The prowords are designed to alert the receiving station as to what will follow. In most cases prowords are not written down.

Before sending messages, you must become familiar with the prowords and know how they are used in message transmission. Prowords are detailed in ACP-125(F), located at http://jcs.dtic.mil/j6/cceb/acps/acp125/ACP125F.pdf. As you monitor the traffic nets it will become evident that operators who use the prowords as they are intended are those who avoid making up their own non-MARS prowords. They are also the ones who avoid making extra comments during message transmission. You will probably notice that these well trained members are the ones who get their traffic on the way with the least difficulty. Unfortunately, you will occasionally hear supposedly trained MARS operators using other than the prescribed procedure, but these are the exception.

SPEAK SLOWLY AND DISTINCTLY. We pride ourselves in the ability to move traffic through the system accurately and quickly. Speed however, is secondary to accuracy. The few seconds gained by speaking too fast are frequently lost when the receiving station is forced to ask for fills. When sending traffic say words no faster than you can easily write them. This means saying words at a speed no faster than 20wpm. Very few people can write longhand at speeds in excess of 28wpm even in a perfect classroom setting. So, slow things down. 12-14wpm may sound slow, but if you are never asked for a fill, the overall transmission time and efficacy of the net improves.

Never say “ROGER” for a message or a fill unless you are certain that you have received it correctly. The proword “SAY AGAIN” is the only way to ask for fills. Do not hesitate to use “SAY AGAIN” for any part of a message that you question. “SAY AGAIN” is used with “ALL AFTER”, “ALL BEFORE”, “WORD AFTER” and “WORD BEFORE”. Requests for fills may use combinations of these to clarify your request.

e.g. SAY AGAIN ALL AFTER Birthday and BEFORE New York.

Never say “ROGER” for a message if the number of words or groups in the text do not agree with the number in the GROUP COUNT. Our system makes it quite easy for a receiving station
to confirm all the necessary information while still in contact with the sending station. If the group count is wrong, a fast way to work out what is wrong is to ask the originating station to “LETTER THE TEXT”, this means stating the first letter of each word phonetically for all the text. It is then fairly easy for the receiving station to work out where there are missing word/s and ask for a fill on the relevant section. Corrections are more difficult to obtain after contact has been terminated. If a “ROGER” has been received for a message and an error is discovered, originate another formal message, stating the mistake and its correction. This is the way to correct the mistake. In the same manner, if a cancellation of a message is required, a new message stating cancellation is the correct method to follow.

7.2. Use Of Common Prowords

7.2.1. I Spell

Use the proword “I SPELL” for all proper names, unusual words, words that sound like other words but are spelled differently, plural or past tense words. i.e. Words ending with “s” or “ed.”, all abbreviations, all initials and some acronyms. Sometimes poor propagation dictates the practice of spelling every word. This will be a judgment call by the sending operator who will always consider the need for accuracy even though this will slow the speed of transmission. The technique for using “I SPELL” is to pronounce the word (if pronounceable), then say “I SPELL”, spell the word phonetically, then pronounce the word again (if pronounceable).

e.g. JIM, I SPELL, JULIET INDIA MIKE, JIM.

When spelling two or more words in sequence always treat each word individually, e.g.

TOM. I SPELL, TANGO OSCAR MIKE, TOM, SMITH, I SPELL, SIERRA MIKE INDIA TANGO HOTEL, SMITH

Some additional examples:
ex1. MR. AND MRS. (You would send) I SPELL MIKE ROMEO AND I SPELL MIKE ROMEO SIERRA
ex2. MARS (You would send) I SPELL MIKE ALPHA ROMEO SIERRA
ex3. J. P. MORGAN (You would send) JULIET PERIOD PAPA PERIOD MORGAN I SPELL MIKE OSCAR ROMEO GOLF ALPHA NOVEMBER MORGAN.
ex4. ACP (You would send) I SPELL ALPHA CHARLIE PAPA

7.2.2. Figures

The proword FIGURES precedes all numerals (with some exceptions). Numerals are always expressed in single digits. e.g. FIGURES ONE SEVEN, not Figures Seventeen. You would write down the numerals “17” and count it as one group. If a number is to be sent as a word like Seventeen, it would be spelled phonetically to insure that no misunderstanding will result. The exceptions all appear in the message heading. The message number is preceded by the
proword NUMBER not Figures. The DATE/TIME Group is preceded by the proword TIME, not Figures and the Group Count is preceded by the proword GROUPS, not Figures. The proword FIGURES is never used in conjunction with those three prowords, (NUMBER, TIME and GROUPS).

7.2.3. Letters and Figures Mixed
If letters and figures appear together in the same group, you use the proword that reflects the first element of the group. If it a numeral then use FIGURES even though there are letters in the group. If the first element is a letter then use I SPELL. e.g. If it is A1C (send) I SPELL ALPHA ONE CHARLIE If it is 1st (send) FIGURE ONE SIERRA TANGO

7.2.4. Caution on Counting of Mixed Groups
Mixed groups can be sent different ways. If sent incorrectly in the text of a message, it will affect the group count. If a proword appears between the figures and the letter it will be counted as another group.

e.g. If 09I is sent FIGURES ZERO NINER INDIA, it is correctly sent as one group but if it is sent as FIGURES ZERO NINER I SPELL INDIA a trained operator would count it as two groups because of the extra proword.

7.2.5. Other Prowords
The other prowords can be found in Annex A to Chapter 3 of ACP125(F) starting at p.42 in http://jcs.dtic.mil/j6/cceb/acps/acp125/ACP125F.pdf. Further discussion of other prowords may be covered on the training nets.

7.3. Reception of a Message

7.3.1. All Received OK
If you are receiving a message and you have heard everything perfectly, you can simply ROGER the message.

e.g.
THIS IS AFA6AB – ROGER – OUT

If the message was numbered, then the acknowledgement would include the number

7.3.2. Lettering The Text
If you are receiving a message and the GROUP COUNT does not agree with the actual number of words that you have copied, you may ask the sending station to “LETTER THE TEXT”. The sender will respond by saying phonetically, the first letter or numeral of each group in the text. When you determine where the error occurred, you will then ask for fills using the “SAY AGAIN” procedure mentioned above.

7.3.3. Verify
**VERIFY** is used by the addressee to Verify the content and accuracy of a message received before receipt of the message is acknowledged. The addressee will originate a “Verify” message using the DTG (Date Time Group) and Station of Origin for identification. The originator will send the identical message again for verification. **VERIFY** may also be used with WORDS BEFORE and WORDS AFTER etc. to ask for verification of a section of a message. When a message to a number of addressees is queried by one station and found to be incorrect, the corrected version must be sent to all addressees.

Example:

AFA6CC transmits:


AFA9HR transmits:

THIS IS Alpha Foxtrot Alpha Niner Hotel Romeo – ROGER – OUT (or WAIT or WAIT OUT)

AFA9HR operator checks the message with the originator and finds that the word after “arriving” should have been “Hong Kong” instead of “Haiphong.” He therefore transmits a correction to all the original addressees. If the message had originally been sent to a net, e.g. MSN, then the message would be sent to the MSN net using the net callsign. Two addressees are assumed in this example:

Alpha Foxtrot Alpha Six Charlie Charlie – Alpha Foxtrot Alpha Niner Alpha Yankee – THIS IS – Alpha Foxtrot Alpha Niner Hotel Romeo – CORRECTION – My One Zero Zero Eight Three Zero Zulu – WORD AFTER Arriving – Hong Kong – OVER

In the above instance, if transmission conditions are less than optimal, it would be a very good idea to additionally use the “I SPELL” proword for the replacement word. Note also, that full phonetics have been used in the above. If the NCS has authorized ALPHANUMERIC callsigns, then the above can be shortened to just saying the letters of the callsigns as in “Ay, Ef, Ay, Six, Cee, Cee” etc.

### 7.4. Transmission Instructions

There are several procedures like READBACK, RELAY, RELAY TO and VERIFY which are used occasionally. You should make the effort to understand them in the event of necessity. Transmission instructions occur after the message number (if used) and before the precedence of the message. That is
7.4.1. **Readback**

*READ BACK* is used in the beginning procedure and thus may be added by any sending operator who may wish to hear the message read back to insure accuracy. Once the message is correctly read back to the sender, no “ROGER” is necessary. The sender upon hearing the message read back correctly responds with, “CORRECT OUT”. If incorrect, he will respond with “WRONG” and correct the appropriate words.

7.4.2. **Relay**

*RELAY* is an understood instruction and is usually not stated. All messages going through one or more intermediate stations is a RELAY. The prosign RR is sometimes seen on data nets and indicates RELAY ROUTINE.

7.4.3. **Relay To**

*RELAY TO* is followed by a call sign or call signs and gives a specific order to the receiving station to relay to a specific station.

7.4.4. **Do Not Answer**

*DO NOT ANSWER* is used by the sender to indicate that acknowledgements are not to be sent for receipt of the message. Stations called are not to answer this call, receipt for this message, or otherwise transmit in connection with this transmission. When this proword is employed, the transmission shall be ended with the proword OUT. Remember, normally message transmissions end in the proword OVER, so OUT at the end of a message transmission gives you a very clear reminder that something is different. *DO NOT ANSWER* is useful when a message is being sent to a group of stations and the net time to wait for acknowledgements from each station would be prohibitive.

7.5. **Originating Messages**

For each message introduced into the MARS system there will be an originator and an originating station. They might be one and the same but in case of Health/Moral and Welfare messages they often are not. The originator is the actual sender of the message whose name appears in the FROM line of the message. The Originating Station is the MARS station who first introduced the message into the AF MARS system. The originating station is responsible for putting the message into the proper format and is responsible for abiding by the restrictions placed on the origination of MARS Messages. i.e. No original death notices, no coded or encrypted messages, no foreign language texts, no messages which contain obvious false or misleading information and no messages which are of a commercial nature. The originating MARS operator will sometimes make some judgment calls when confronted by some of these restrictions. Once a message is introduced into the system, no station may refuse the traffic on the basis of the above restrictions. If you receive a message that you believe should not have gotten into the system, do not deliver it but turn it over the HQ USAF MARS and state your
reason for non-delivery. In the case of an original death notice Headquarters would probably turn it over to proper channels. i.e. Red Cross—Clergyman etc.

7.5.1. **Arrl Numbered Radiograms**

The American Radio Relay League provides a list of pre-written texts to fit many occasions, including emergencies. USAF MARS encourages the use of these “canned” messages even in messages that are not to be refiled. In the text of your MARS message, use ARL and the number spelled out. (NOT figures).

e.g. ARL FIFTY FOUR sent as three groups. In delivery to a third party, that must be converted back to plain language. In this case (Many thanks for your good wishes.) See [http://www.arrl.org/fsd-3-arrl-numbered-radiograms](http://www.arrl.org/fsd-3-arrl-numbered-radiograms) for a list of ARRL Numbered Messages.

7.5.2. **Assigning Precedence**

There are five levels of precedence available, MARSGRAM, ROUTINE, PRIORITY, IMMEDIATE and FLASH. MARS members will not originate IMMEDIATE or FLASH. (IMMEDIATE may be available to some officials during emergencies covering a very widespread area that will necessitate special assistance, e.g. widespread rioting across many cities); however, MARS Members may relay and/or deliver these messages. FLASH messages will never be passed on MARS circuits. Most messages originated by MARS Members will be ROUTINE with PRIORITY being reserved for messages with a definite time factor, or an ACTUAL EVENT EEI message. e.g. A flight arrival or a deadline to be met. PRIORITY does not mean that the text of a message is more important than ROUTINE but only that this message should be handled ahead of Routine because of the time factor.

7.5.2.1. **Time Objective**

Message originators do not normally select the means of communication to be used. This is a function of the communication service throughout the entire route of the message. Nevertheless, message originators should realize that various factors could, singly or collectively, add to the time required to complete the delivery of a message. Among these are:

- a) The length of the message.
- b) The overall message traffic load.
- c) Encryption and decryption requirements.
- d) The means of communications i.e. automatic or manual and delivery arrangements at terminals.
- e) The number of relays required as opposed to point-to-point communications.
- f) Poor transmission conditions.
- g) Communications staffing problems.
Recognizing that these factors may affect the speed of service of any given message, the following general time objectives apply:

<table>
<thead>
<tr>
<th>Precedence Category</th>
<th>Time Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLASH</td>
<td>Not fixed. Handled as fast as humanly possible with a time objective of less than 10 Minutes. (Note that FLASH is not used in MARS).</td>
</tr>
<tr>
<td>IMMEDIATE</td>
<td>30 Minutes to 1 Hour.</td>
</tr>
<tr>
<td>PRIORITY</td>
<td>1 to 6 Hours.</td>
</tr>
<tr>
<td>ROUTINE</td>
<td>3 Hours to the start of business on the next working day.</td>
</tr>
</tbody>
</table>

Note 1: The objectives include the overall handling time from the time accepted by the communications facility at the point of origin to delivery to the addressee at the point of destination.

7.5.3. **Punctuation**

Generally, punctuation will not be used in the text of a MARS message. If you absolutely need to use punctuation to clarify the meaning of a text, then use only these approved abbreviations and count each one as a group and include it in the GROUP COUNT. Here are a few of the most common punctuations.

Some confusion results in the distinction between Hyphen and DASH. If DASH is used, it is spelled out and counted as a group, making it necessary to count what came before and after as separate groups. If hyphen is used, it is simply said as part of a group and allows the hyphenated word to be counted as one group. e.g. R-390 is sent as I SPELL ROMEO HYPHEN THREE NINER ZERO and is counted as one group.

7.6. **Passing Traffic**

The NCS will direct stations to pass traffic based on the precedence of each message and the availability of addressee(s) or another station to relay that traffic. Higher precedence traffic will normally be passed before lower precedence traffic unless stations are not available to handle the higher precedence traffic. NCS will then direct the holding station on how to proceed.

e.g AFA1AA THIS IS AFN3TD, CALL AFA7BB PASS ONE PRIORITY KANSAS OUT Note that since the transmission from AFN3TD ends with the proward OUT, AFA1AA needs make no response to AFN3TD.
Having heard the directions of the NCS, the sending station calls the receiving station.

**e.g.** AFA7BB THIS IS AFA1AA, ONE PRIORITY OVER

Assuming AFA2BB copies AFA1AA well, he sends

**e.g.** AFA1AA THIS IS AFA7BB, OVER

If AFA7BB does not copy well he must notify AFA1AA of the problem using correct radio check prowords

**e.g.** AFA1AA THIS IS AFA7BB, WEAK READABLE, OVER  Or

AFA1AA THIS IS AFA7BB, UNREADABLE, OVER

Once communications has been established between the two stations AFA1AA proceeds to pass the traffic.

**e.g.** THIS IS AFA1AA MESSAGE, (continue with the message header and text, pausing and unkeying the microphone approximately every 20 seconds to allow for a station with higher precedence traffic to break in.) AFA1AA ends his/her transmission with the proword OVER (If there are additional messages to send to this station, with the proword MORE TO FOLLOW, OVER.).

Assuming AFA7BB copied the message completely and does not need repetitions he sends

THIS IS AFA7BB, ROGER OUT

Or, to accept another message

THIS IS AFA7BB, ROGER OVER

If AFA7BB did not copy the message completely or missed it, he/she will ask for repeats using the proword SAY AGAIN and ALL BEFORE, ALL AFTER, etc. or other identifiers within the message:

**e.g.** THIS IS AFA7BB, SAY AGAIN ALL AFTER TO AND BEFORE BREAK, OVER

Note that this is different from the use of VERIFY. SAY AGAIN indicates that you missed something and want it repeated, whereas VERIFY indicates that you have the copy but are asking for a verification of the data to make sure you have it word for word accurate. In actual message passing the use of these terms will often be confused. If you have the message fully copied down, then requesting VERIFY is appropriate. If you have completely missing words or
sections of the message or the entire message, then SAY AGAIN is the appropriate choice of proword.

7.7. Delivering Messages
MARS messages are relayed through the system with the intention of getting them close enough to their destination for a local telephone call. Since this is not always possible, a few guidelines for delivery should be mentioned. Generally, if you are the closest station to the destination, you are expected to accept traffic. Members are never asked to have “out of pocket” expense for delivery. i.e. using your own postage or paying for long distance telephone. However, if you feel generous, you may deliver this way, but DELIVERY BY COLLECT TELEPHONE CALL IS NOT ALLOWED.

When messages cannot be delivered in the Air Force channels, refiling is encouraged. The Amateur Band NTS and the ARMY MARS or NAVY/MarineCorps MARS nets provide channels for refiling.

7.8. Service Messages
If you receive a message and cannot deliver it for any reason, i.e. addressee moved and left no forwarding address, incomplete or wrong address, party unknown etc., you must originate a "SERVICE" message back to the originating station. In the text of your service message refer to the DATE/TIME Group (DTG) of the original message and state briefly your reason for non-delivery. Note that the DATE/TIME group (DTG) is the only reference to use. Do not use the message number, as it changes on each relay.

In practice you will see the group count eliminated and the word SERVICE or the initials SVC in place of a number. While this practice is in common usage it is not the most correct method. Previous training material has always advised to always count groups and use the word Service as the first word of the text to indicate the nature of the message. This is one of several practices where prescribed procedure has been changed by certain operators and then the entire system slips into a practice which may be in error.

7.9. Refile (MARS to Amateur)
Here are the steps to follow when you find that you must refile a message into the NTS (National Traffic System) on the amateur band. It will help if you are familiar with the amateur message format.

1. The message number may change or stay the same.
2. The precedence will probably stay the same. NOTE: Precedence for Amateur messages are Emergency, Priority, Welfare and Routine.
3. Put your amateur call sign as the station of origin.
4. The check number will be the MARS group count less any signature. (In the amateur format
5. Place of Origin is City, State or Country via MARS
6. Time filed is the hours and minutes only from the MARS message
7. Date is Month Day and Year.
8. The address is the TO: address from the MARS message. (There's no provision for a FROM address)
9. The prosign BT (pronounced BREAK) separates the Text from the heading.
10. The Text will be the same except for any signature. ie."Signed John","Love Bill" etc. and these will follow the text after the second BT.
11. Since there is no provision for a From address in the amateur message, it is recommended that the from address from the MARS message be added with the signature as an ending since information is already available.

The following is a MARS message and then below that is the same message as refiled into the Amateur Band NTS.

DE AFA3BB NR 1
R 041930Z JUNE 2008
FROM SGT WILLIAM SMITH 4TH INF BTN FT SILL OK 73530
TO MR AND MRS JOSEPH SMITH 11515 STATE CHICAGO IL 60691 302-921-0078
GR 16
BT
ENJOYING NEW ASSIGNMENT WILL WRITE LONG LETTER EXPLAINING NEW DUTIES HOPE TO SEE YOU SOON BILL BT
OVER

Same message as filed into the NTS (Amateur)

NUMBER 1 ROUTINE KOUER CHECK 15 OKLAHOMA VIA MARS TIME 1930Z 4 June 08 TO: MR AND MRS JOSEPH SMITH
11512 STATE CHICAGO, IL 60691
302-912-0078
BT
ENJOYING NEW ASSIGNMENT X WILL WRITE LONG LETTER EXPLAINING NEW DUTIES X HOPE TO SEE YOU SOON BT SIGNED BILL

Optional: SGT WILLIAM SMITH
4th INF BTN
FT SILL OK 73505
NOTE: The ARRL Amateur system uses an XRAY in the text for all punctuation. It is not counted in the check or group count.

7.10. Refile (Amateur to MARS)

Since the MARS message format is really more precise and you are trained in drafting MARS messages, this should be easier than the above procedure. Here are a few important things you should ask the sending station if you are asked to take traffic from the Amateur band and refile it into MARS: Is there a complete FROM Address, with telephone number? If the message cannot be delivered will you be able to reach the sender for notification? Is the text a subject that is acceptable on the MARS circuits? (See page 7-3 “Originating Messages”).

1. Re-number to fit your MARS sequence
2. Assign a proper MARS precedence.
3. New date/time group should reflect the Time originated into MARS
4. Complete From and To Address.
5. Move any signature up into the Text and eliminate any "XRAYS" from the Amateur message to arrive at an actual MARS Group Count and TEXT.

If the Amateur message has an HX instruction (see Attachment 4 for the meaning of these codes), these instructions can be written out in the ending of your MARS message. In the MARS Heading there is no provision for HX instructions. If you receive a message which uses one, put it in plain language as an operators note at the end of your MARS message. Make certain if you accept an amateur message with HX instructions that the sender knows that MARS will not allow a collect call for delivery.
8. CHAPTER 8 — ESSENTIAL ELEMENTS OF INFORMATION (EEI)

8.1. How to Draft and Send an EEI Message

Have on hand, a copy of MESSAGE FORM for EEI REPORTS and the ESSENTIAL ELEMENTS of INFORMATION (EEI) Event Identifiers and use these as guides when drafting the EEI message. When drafting an EEI message for voice transmission put a regular MARS heading on it. E.g.

Number
Precedence, Date/Time Group
FROM (your Name, Station and State)
TO AAN3EEI VA (See note)
INFO AFD4EC SC
Your Region or Division Emergency Coordinator
Your SMD
Other INFO Addressees

Note: Actual EEI’s are addressed to AAN3EEI VA; Exercise EEI’s are addressed to AFN2EC NY.

Use the following format for your text....

BT
MARS EXERCISE or ACTUAL EVENT
SUBJ: EEI REPORT

1. REF. EVENT IDENTIFIER: (Use applicable event identifier from page 8-3 or plain language if not on Identifier List)

A. INCIDENT LOCATION TIME: (Specify Town, City, County or State-wide area)

B. EMERGENCY MEDICAL: (Operational, Damaged, Destroyed, or Field Facilities available, etc.)

C. LOCAL TRANSPORTATION: (Indicate whether roads, bridges, local airports, railroads are affected and status – open, restricted, closed, damaged, destroyed. Provide enough information to disaster relief officials to aid in deciding how to get assistance to the affected area.)

D. GENERAL DAMAGE DESCRIPTION: (General description of damage or impact on Major structures such as Government buildings, schools, residences, commercial properties, public facilities; Fire stations, etc. Include location of shelters if applicable.)
E. UTILITY STATUS: (Gas, Water, Commercial Power, Sanitation Systems – Operational, Damaged, Destroyed, Needed.)

F. COMMUNICATIONS STATUS: (Telephone, Radio, Cellular Phone – Operational, Damaged, Unavailable)

G. SOURCE OF INFO: (Indicate Source of Information if different from originator of the message. Include MARS Call sign, Name of Official and Agency, Radio/TV Call sign or Network as applicable.)

H. REMARKS: (Include comments about expected changes in status of any of the above items such as power companies expect power to be cut for (specify estimated time). If applicable, include expected time of next report.)

MARS EXERCISE or ACTUAL EVENT (Same as beginning)

BT
NNNN

You can take this message to TRANSCON Voice net or you can send it to a Digital Representative on your Division voice net who can relay it to one of the digital systems. Keep your descriptions brief and use NA if a category is “Not applicable” or “Not Affected”.

If you have occasion to report an actual event use the same format with the following exceptions: Replace the words “MARS EXERCISE” with “ACTUAL EVENT” at both places in the Text. An actual event message must be sent by the most expedient method available. Email is allowed for actual events ONLY. When sending email, use the addresses: aan3eei@winlink.org and use an email subject line of //MARS P/ ACTUAL EVENT EEI.

8.2. Essential Elements of Information (EEI) Event Identifiers

EVENT: ....................................................................................................IDENTIFIER:

AIR CRASH..............................................................FALLEN STAR
AIRBORNE POISON GAS....................................................POISON AIR
BIOLOGICAL EVENT.........................................................BAD BUG
BOMING INCIDENT.........................................................LOUD BANG
BRIDGE DAMAGE/LOSS (MAJOR) ..............................LOST SUPPORT
CHEMICAL SPILL ......................................................POISONED GROUND
CIVIL UNREST/RIOT.......................................................BAD MAGIC
DAMAGING HAIL........................................................FALLING ICE
EARTHQUAKE.............................................................. ROLLING THUNDER
FLOOD.......................................................................... TALL WATER
FOREST/GROUND FIRE............................................... SCORCHED GROUND
GAS LEAK/EXPLOSION (MAJOR).................................. HOT AIR
HEAVY WINDS (ONLY).................................................. MIGHTY WIND
HURRICANE................................................................ HOWLING WIND
ICY ROADS/INTERSTATE/FREeways........................ BLACK ICE
INTERSTATE BLOCKED/DAMAGED (MAJOR)................. BLOCKED LANE
MAJOR COMMUNICATIONS LINK DOWN..................... LOST COMM
NUCLEAR...................................................................... NUCLEAR GRAYSTONE
OIL SPILL/WATER....................................................... DARK WATER
POWER OUTAGE (MAJOR).......................................... DARK DAY
SEARCH/RESCUE....................................................... SECURE HAVEN
SEISMIC SEA WAVE.................................................... TSUNAMI
SHIP WRECK/INCIDENT............................................. DEEP SEA
TERRORIST THREAT..................................................... HIDDEN SHADOW
TORNADO..................................................................... VIOLENT TWISTER
TRAIN WRECK/DERAILMENT...................................... BROKEN TRACKS
VOLCANO..................................................................... BRAZEN BRIMSTONE
WATER DAM BREAK/DAMAGED................................. FAST WATER
WINTER SNOW STORMS............................................. WHITE BLANKET

COMMUNICATIONS SUPPORT ROLE(S) IDENTIFIERS:

EVENT:............................................................................ IDENTIFIER:

FEMA SUPPORT.......................................................... FEDERAL RESPONSE
JCS SUPPORT............................................................. JOINT LIONS
NATIONAL GUARD/RESERVE SUPPORT..................... CIVIL COVER
NCS SUPPORT........................................................... TOP COVER
NDMS SUPPORT......................................................... MEDICAL LINK
SHARES SUPPORT..................................................... COMMON FORTUNE

8.3. Message Form for EEI Reports (Voice)

_________________THIS IS___________NUMBER_____

ROUTINE or (PRIORITY) TIME_____________ZULU___________ (6 digit
Date time ) (Month) (Year)

FROM______________________CALL SIGN___________ (Name) (call sign)
(State)

TO CALL SIGN AAN3EEI VA or AFN2EC NY
Note: Actual EEI’s are addressed to AAN3EEI VA; Exercise EEI’s are addressed to AFN2EC NY.

INFO______________________________________________________________
______________________________________________________________

BREAK

REF. ACTUAL EVENT or MARS EXERCISE (Say one or the other, not both)

SUBJ. EEI REPORT

FIGURE 1 REF. EVENT IDENTIFIER
______________________________________________________________ (Event Identifier from List)

I SPELL ALPHA INCIDENT LOCATION TIME ____________________________________________

(Area impacted) I SPELL BRAVO EMERGENCY MEDICAL
______________________________________________________________ (Status of Medical Facilities) I SPELL

CHARLIE LOCAL TRANSPORTATION ____________________________________________ (Status of Transportation Facilities) I SPELL

DELTA GENERAL DAMAGE DESCRIPTION
______________________________________________________________ (Exact location and Character of Damage) I

ECHO.UTILITY STATUS ____________________________________________ (Status of local Utilities) I SPELL

FOXTROT COMMUNICATIONS STATUS________________________________________ (Status of Communication Facilities) I SPELL

GOLF SOURCE OF INFO ________________________________________________ (Source of Information) I SPELL

HOTEL REMARKS______________________________________________________ (Detailed description and estimate of resumption of normalcy) ACTUAL EVENT or MARS EXERCISE

(Say one or the other, not both)

BREAK

OVER

8.4. Sample EEI Message (Exercise)

DE AFA3DK NR 1 R 101730Z JAN 2007 FM DAN M. KIRBY/AFA7DK/MO TO: AFN2EC NY INFO:

AFD4EC SC

AFE5EC WI

AFF7MO MO

BT
MARS EXERCISE
SUBJ. EEI REPORT
1. REF. EVENT IDENTIFIER: TALL WATER
   A. INCIDENT LOCATION TIME: Cedar County Missouri
   B. EMERGENCY MEDICAL: Not affected
   C. LOCAL TRANSPORTATION: FLOODING ON MANY SECONDARY ROADS.
   D. GENERAL DAMAGE DESCRIPTION: Flooding of low areas.
   E. UTILITY STATUS: NOT AFFECTED
   F. COMMUNICATIONS STATUS: NOT AFFECTED
   G. SOURCE OF INFO: Cedar County Sheriff
   H. remarks: RAIN EXPECTED FOR SEVERAL HOURS. ROADS EXPECTED TO GET WORSE.
   POTENTIAL FOR CLOSING OF MANY SECONDARY ROADS LATER TODAY.

MARS EXERCISE
BT
NNNN

NOTE: Precedence for Actual EEI will be Priority. Precedence for Exercise EEI will always be Routine.

MARS Exercise EEI Reports should be sent via digital if available to AFN2EC NY. If digital is not available the report may be sent by voice to a digital capable station who will place it into the digital system.

DO NOT SEND EXERCISE MESSAGES VIA EMAIL UNLESS YOU ARE INSTRUCTED TO DO SO BY THE CHIEF USAF MARS OR THE NATIONAL EMERGENCY COORDINATOR/AFN2EC.

DE AFA3DK NR 1
P 101730Z JAN 2007
FM DAN M. KIRBY/AFA7DK/O
TO: aan3eei@winlink.org (See Notes:)
INFO: ZEN AFN2EC NY ZEN AFD4EC SC ZEN AFN5NC NE ZEN AFE5EC WI ZEN AFF3XX SMD ZEN AFA3XX SEC
BT
ACTUAL EVENT
SUBJ: EEI REPORT
1. REF EVENT IDENTIFIER: TALL WATER
   A. INCIDENT LOCATION TIME: CEDAR COUNTY MISSOURI
   B. EMERGENCY MEDICAL: NOT AFFECTED
   C. LOCAL TRANSPORTATION: FLOODING ON MANY SECONDARY ROADS.
   D. GENERAL DAMAGE DESCRIPTION: HEAVY RAINS HAVE CAUSED FLOODING OF LOW AREAS
E. UTILITY STATUS: NOT AFFECTED  
F. COMMUNICATION STATUS: NOT AFFECTED  
G. SOURCE OF INFO: Cedar County Sheriff  
H. REMARKS: RAIN EXPECTED FOR SEVERAL HOURS. ROADS EXPECTED TO GET WORSE. POTENTIAL FOR CLOSING OF MANY SECONDARY ROADS LATER TODAY.  
ACTUAL EVENT  
BT  
NNNN  

NOTES:  
Precedence for Actual EEI will be Priority. Precedence for Exercise EEI will be Routine.  
Actual EEI Reports should be sent via E-MAIL if available to the addresses as follows: E-MAIL: aan3eei@winlink.org (must be entered as all lower case characters). The E-MAIL subject must be //MARS P/ACTION EEI. (Note: If this is not the subject line of the email it will be rejected.)  
The originating station that sends an Actual EEI Report by E-Mail is responsible for sending the info copies by CC’s or other means (i.e. radio)  
Actual EEI reports sent by digital mode (in the event E-MAIL is unavailable) will be sent via the Winlink 2000 (WL2K or AirMail) system to: aan3eei@winlink.org  

DO NOT SEND EXERCISE MESSAGES VIA EMAIL UNLESS YOU ARE INSTRUCTED TO DO SO BY THE CHIEF USAF MARS OR THE NATIONAL EMERGENCY COORDINATOR/AFN2EC.  

8.5. Example Digital EEI Exercise Message  
Below is an example of an EXERCISE EEI message as it would be formatted for transmission by digital means:  
DE AFA5JR NR 1  
R 071410Z SEP 2007  
FM: LEO LIBERIO / AFA9LL / CA  
TO: AFN2EC NY  
INFO: AFD4EC SC  
AFN3NC NE  
AF5ESEC WI  
AFF3WI WI  
BT
REF: MARS EXERCISE
SUBJ: EEI REPORT
1. REF: EVENT IDENTIFIER: LOST SUPPORT
A. INCIDENT LOCATION TIME: POLK COUNTY WI AND WASHINGTON AND CHISAGO COUNTIES MN
B. EMERGENCY MEDICAL: OPERATIONAL
C. LOCAL TRANSPORTATION: US HIGHWAY 8 BRIDGE BETWEEN ST CROIX FALLS WI AND TAYLORS FALLS MN CLOSED
D. GENERAL DAMAGE DESCRIPTION: STRUCTURAL DAMAGE TO US HIGHWAY 8 BRIDGE
E. UTILITY STATUS: NOT AFFECTED
F. COMMUNICATIONS STATUS: NOT AFFECTED
G. SOURCE OF INFO: REPORTED BY LOCAL RADIO STATION WPCA
H. REMARKS: TANKER TRUCK ACCIDENT ON BRIDGE CAUSED EXTENSIVE DAMAGE TO BRIDGE CAUSING BRIDGE CLOSURE. TRAFFIC REROUTED TO OTHER ROUTES. NO ESTIMATED TIME TO REPAIR.
MARS EXERCISE
BT
NNNN
9. **CHAPTER 9 — MISCELLANEOUS INFORMATION**

9.1. **Logs**

You are required to keep a log of all of your MARS activities. Any format of your choosing is acceptable if it shows the times that you enter nets, closing times, traffic activity and any other formal MARS activity. Since the station log is a legal document, entries should be made in ink with no erasures. Errors should be marked out with a single line and the corrected notation initialed by the operator on duty. While many MARS Members keep their logs indefinitely, logs must be retained for at least one year. When an actual EEI event has occurred, the logs need to be kept for three years. An Amateur Radio Log book when dedicated to MARS usage is a perfect format for recording logs. Although ACP publications mention paper logs, it is to be noted that electronic computer copy may, at the discretion of the Chief of MARS, now be deemed acceptable for MARS usage provided sufficient back-up copies are made to preserve the records.

9.2. **Time Keeping**

All official time is kept in UTC (Coordinated Universal Time) on the basis of the 24 hour clock. Formerly this was called GMT (Greenwich Mean Time) and is sometimes referred to as military time. Since most of our HF nets are scheduled for convenient evening hours, we will occasionally refer to “Local Time” but this must be converted to UTC for official purposes such as logs, Message DTG, etc.

When expressing time in UTC the figures are followed by the letter “ZULU” to indicate the system being used.

9.3. **Broadcasts and Bulletins**

Broadcasts are released from HQ MARS and other selected officials on an as needed basis. The information in these broadcasts is addressed to all MARS members. Some of the information is merely informative but much of it is directive. All members are required to have current knowledge of the contents of these broadcasts. The broadcasts and bulletins are read a number of times on various nets and posted on various bulletin boards and web pages.

9.4. **Frequency Tolerance**

The frequency tolerance for the HF Fixed and Mobile service is defined in chapter 5.2.1 of the NTIA Manual of Regulations (Red Book), see [http://www.ntia.doc.gov/files/ntia/publications/manual_5_11.pdf](http://www.ntia.doc.gov/files/ntia/publications/manual_5_11.pdf). The NCS is responsible for ensuring the net is operating within prescribed tolerance and for ensuring all members on the net are within tolerance. It should be noted that a frequency tolerance of 20Hz is typically only achieved with a radio equipped with an OCXO (Oven Controlled Crystal Oscillator).
9.4.1. **Bandwidth**

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

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

9.5. **Surplus Equipment**

New members become eligible to request surplus equipment 6 months after completing training if at least minimum participation requirements have been met. Information about availability and procedure for requesting surplus equipment is available through your SMD. The state administrative net is the ideal place to get this information.

9.6. **Return Address for MARS Correspondence**

Mailed messages and MARS correspondence should carry the return address of HQ MARS:

HQ AFCA/ESLM (MARS) (Your Call sign / State.)
203 W LOSEY ST. ROOM 3100
SCOTT AFB IL 62225-5222

NOTE: The office symbol changes from time to time. Watch for announcements in the MARS BROADCASTS.

9.7. **Drill Messages**

The "Drill" Messages that you will send to complete training are simply messages in plain dress format. These messages can be an actual message to another MARS member or a third party. Actual messages will be relayed on through the system for delivery. In most cases the training message will be a factitious message in which case the word "DRILL" must appear as the FIRST and LAST word of the text. Both words "Drill" are counted in the Group Count. The purpose of the drill message is to demonstrate your ability to send messages in the MARS format using all the correct procedures and prowords. When sending Drill message use complete addresses and avoid the abbreviated format.

After sending the message on the air your trainer may make some suggestions and offer constructive help.

9.8. **Training Final Exam**

After satisfactorily sending the training drill messages you will receive a 50 question final exam. A score of 85% or better is required to complete training. The final exam is an open book test.
and is based on material found in this guide and discussed on the training nets. The final exam should be completed within 10 days.

9.9. Participation Time
Your time spent on the MARS Networks will be recorded and reported by various Net Managers of the respective nets. On some nets the actual time you are checked in is reported and on others, often you will be given a full hour for any time spent on certain administrative nets. Miscellaneous time may be reported to your SMD for time spent on MARS projects or MARS business such as attendance at MARS conferences, preparing net reports, repeater maintenance, MARS technical projects etc. The Divisional Training Manager assigned to you will provide you format used to send to the SMD of your state.

9.10. Call Sign Change
When you have met all of the training requirements, the Region or Division Training Director will notify your State MARS Director, who will send you an AF Form 3661 giving you a permanent assignment and authorizing the change in your call sign by dropping the /T suffix. Sometime later you will receive a MARS license and ID card (AF Form 3666) from USAF MARS Headquarters reflecting your modified call sign.

9.11. Chain of Command
The primary contact point for questions, comments or other issues relating to USAF MARS is your State MARS Director (SMD). If your SMD is unable to address a particular issue, your request will be forwarded to the appropriate Region Official or the Region MARS Director (RMD). If the RMD is unable to resolve the issue, it will be forwarded to the appropriate Division Official or the Division MARS Director (DMD). If the DMD still is unable to resolve the issue, it will be forwarded to HQ USAF MARS for final resolution.

It is imperative that the chain of command be strictly adhered to without deviation. Most USAF MARS officials are volunteers and already dedicate a significant amount of time to the USAF MARS program.

Failure to follow the chain of command can greatly increase the work load on these individuals and reflects poorly on the overall MARS program.

9.12. Frequency Designators
USAF MARS frequencies are referenced using a “frequency designator” rather than by the specific numerical frequency. These two or three character frequency designators allow USAF MARS operators to indicate specific frequencies without divulging the exact numerical frequency to any third party that might be monitoring the radio transmissions. Frequency Designators are always given in phonetics e.g. FREQUENCY ROMEO HOTEL
In short, never give numerical MARS frequencies over the air.

The frequency designators and exact numerical frequencies are contained in the “USAF MARS Frequency Matrix” available through your State MARS Director or your Training Director.