

# U. S. AIR FORCE

## Military Auxiliary Radio System (MARS)

### Digital Interoperability Implementation Guide



OPR: Thomas Carrigan, AF MARS National Training Manager

[AFN1TM@marsregionone.org](mailto:AFN1TM@marsregionone.org)

18 NOV 2014

Revision -



---

**REVISION PAGE**

REVISION	DATE	DESCRIPTION
	18 NOV 2014	Initial Release



---

## TABLE OF CONTENTS

<b>1</b>	<b>INTRODUCTION .....</b>	<b>1</b>
1.1	ASSUMPTIONS.....	1
1.2	REQUIREMENTS .....	1
1.3	CONVENTIONS USED IN THIS GUIDE .....	2
1.3.1	<i>Call Signs .....</i>	<i>2</i>
1.3.2	<i>Routing Indicators .....</i>	<i>2</i>
1.3.3	<i>Encryption .....</i>	<i>2</i>
<b>2</b>	<b>REFERENCE DOCUMENTS.....</b>	<b>3</b>
<b>3</b>	<b>RECOGNITION OF DIGITAL MESSAGE FORMATS AND PROCEDURES.....</b>	<b>4</b>
3.1	BRIEF OVERVIEW OF DIGITAL MESSAGE TYPES.....	4
3.2	RECOGNIZING ACP-126 PLAINDRESS MESSAGES.....	4
3.3	RECOGNIZING ACP-127 (US SUPP 1K) PLAINDRESS MESSAGES.....	5
3.4	MESSAGES WITH ENCRYPTED TEXT .....	6
3.5	RECOGNIZING CODRESS MESSAGES.....	8
<b>4</b>	<b>SIMPLE RELAY OF MESSAGES.....</b>	<b>10</b>
4.1	STEP 1. VERIFY THAT THE MESSAGE WAS RECEIVED CORRECTLY.....	10
4.1.1	<i>Verifying Reception Of Plain Language Messages .....</i>	<i>11</i>
4.1.2	<i>Verifying Reception Of Encrypted Messages.....</i>	<i>11</i>
4.2	STEP 2. EDIT LINE 1 TO INDICATE YOUR STATION AND SERIAL NUMBER.....	12
4.3	STEP 3. COPY AND PASTE MESSAGE INTO MS-DMT TRANSMIT PANEL.....	12
<b>5</b>	<b>ACP-127 MESSAGE PROCEDURE .....</b>	<b>13</b>
5.1	ROUTING INDICATOR PLAN.....	13
5.2	ACP-127 DETAILS.....	13
5.2.1	<i>Format Line 1 - Transmission Identification.....</i>	<i>14</i>
5.2.2	<i>Format Line 2 - Precedence and Routing Indicator For Message Being Sent.....</i>	<i>15</i>
5.2.3	<i>Format Line 3 - Sending Station's RI, Serial Number and Filing Time.....</i>	<i>15</i>
5.2.4	<i>Format Line 4 - Transmission Instructions.....</i>	<i>16</i>
5.2.5	<i>Format Line 5 - Precedence and Date Time Group.....</i>	<i>17</i>
5.2.6	<i>Format Line 6 - Plain Language Address <u>OR</u> Routing Indicator of the Originator.....</i>	<i>17</i>
5.2.7	<i>Format Line 7 - <u>BOTH</u> The Routing Indicator <u>AND</u> Plain Language Address of the Addressee separated by (/).....</i>	<i>17</i>
5.2.8	<i>Format Line 8 - INFO addressee(s) .....</i>	<i>18</i>
5.2.9	<i>Format Line 9 - Exemptions .....</i>	<i>18</i>
5.2.10	<i>Format Line 10 - Group Count.....</i>	<i>18</i>
5.2.11	<i>Format line 11 - Break .....</i>	<i>18</i>
5.2.12	<i>Format Line 12 - Message text.....</i>	<i>18</i>
5.2.13	<i>Format Line 13 - Break.....</i>	<i>19</i>
5.2.14	<i>Format Line 14 - (omitted deliberately, not normally used).....</i>	<i>19</i>
5.2.15	<i>Format Line 15 - Serial Number.....</i>	<i>19</i>
5.2.16	<i>Format Line 16 - End of Message Indicator .....</i>	<i>19</i>
<b>6</b>	<b>ACP-127 CODRESS MESSAGE.....</b>	<b>20</b>

---



---

6.1	ACP-127 CODRESS PROCEDURE.....	20
6.1.1	ACP-127 CODRESS Format Lines 1, 2, and 3.....	20
6.1.2	ACP-127 CODRESS Format Line 4 .....	21
6.2	ACP-127 CODRESS FORMAT LINE 5 .....	21
6.2.1	ACP-127 CODRESS Format Lines 6, 7, 8 and 9.....	21
6.2.2	ACP-127 CODRESS Format Line 10.....	21
6.2.3	ACP-127 CODRESS Format Line 11.....	21
6.2.4	ACP-127 CODRESS Format Line 12.....	22
6.2.5	ACP-127 CODRESS Format Line 13, 14, 15, and 16.....	22
<b>7</b>	<b>U. S. MESSAGE TEXT FORMAT (USMTF) .....</b>	<b>24</b>
<b>8</b>	<b>MARS OFF-LINE TRANSEC .....</b>	<b>25</b>
<b>9</b>	<b>AUTOMATED MESSAGE TERMINAL (AMT) .....</b>	<b>26</b>

## LIST OF FIGURES

Figure 3-1	ACP-126 PLAINDRESS Message Sample .....	4
Figure 3-2	ACP-126 PLAINDRESS Message Sample (Produced by AMT).....	4
Figure 3-3	Sample ACP-127 PLAINDRESS Message Using Simulated Routing Indicators.....	5
Figure 3-4	Sample ACP-127 PLAINDRESS Message Using Plain Language Address (PLA)....	6
Figure 3-5	Example of an ACP-126 PLAINDRESS Message with Encrypted Text .....	7
Figure 3-6	Example of an ACP-127 PLAINDRESS Message with Encrypted Text .....	7
Figure 3-7	Example of an ACP-127 CODRESS Message .....	8
Figure 4-1	Example of a Received CODRESS Message With Errors.....	10
Figure 5-1	Example of ACP-127 PLAINDRESS Message Components Showing Format Lines (FL) to the Left.....	14
Figure 6-1	Example of a Complete ACP-127 CODRESS Message (Code Groups Are Simulated And Do Not Actually Decrypt).....	23
Figure 7-1	Example of a USMTF Message .....	24



FM: THOMAS CARRIGAN/ AFN1TM  
AF MARS NATIONAL TRAINING MANAGER  
TO: ALL AF MARS MEMBERS  
DT: 15 NOV 2014

SUBJ: TRANSMITTAL - DIGITAL INTEROPERABILITY IMPLEMENTATION GUIDE

MANY AIR FORCE MARS MEMBERS HAVE EXPRESSED CONCERNS ABOUT THE VOLUME OF NEW INFORMATION BEING PRESENTED TO THEM IN RECENT MONTHS RELATED TO INTEROPERATING WITH OTHER MARS SERVICES, USING THE DIGITAL MODE REFERED TO AS MIL-STD M110A, USING UNFAMILIAR MESSAGE PROCEDURES SUCH AS ACP-127, ENCRYPTION, AND USMTF MESSAGE FORMATS. SEVERAL HAVE COMMENTED THEY FEEL OVERWHELMED AND CONFUSED AND DON'T KNOW HOW TO BEGIN TO PROCESS ALL THE NEW INFORMATION.

THIS GUIDE IS WRITTEN FOR THOSE MEMBERS. THIS GUIDE IS NOT A SUBSTITUTE FOR OTHER TRAINING DOCUMENTS AND REFERENCE MATERIALS. RATHER, IT IS INTENDED TO HELP MEMBERS WITH A PLAN OF WHAT TO DO FIRST, WHAT TO DO NEXT, ETC. IT DOES CONTAIN AN EXPANSIVE EXPLANATION OF ACP-127 MESSAGE PROCEDURES BECAUSE IT WILL TAKE SOME TIME FOR A MORE COMPREHENSIVE MANUAL CONTAINING THAT SUBJECT TO BE PREPARED.

NO ONE EXPECTS MARS MEMBERS TO MASTER THESE SUBJECTS INSTANTANEOUSLY. WE ARE ALL ENGAGED IN A PROCESS OF LEARNING HOW TO USE THESE TECHNOLOGIES AND PROCEDURES TO SUPPORT OUR MISSION OF PROVIDING CONTINGENCY COMMUNICATIONS TO THE DEPARTMENT OF DEFENSE IN ACCORDANCE WITH DOD INSTRUCTION 4650.02. FURTHERMORE, WE NEVER FINISH TRAINING. WE WILL ALL BE TRAINING CONTINUOUSLY AS LONG AS WE REMAIN IN MARS.

I HOPE YOU WILL FIND THIS GUIDE HELPFUL. I ALSO HOPE THAT THOSE MEMBERS WHO BECOME MORE PROFICIENT AT USING THESE TECHNOLOGIES AND PROCEDURES WILL HELP OTHERS WHO NEED HELP. WE ARE ALL TRAINING



---

AND WE CAN ALL BE TRAINERS. PLEASE DO KEEP YOUR TRAINING EFFORTS POSITIVE AND SUPPORTIVE TOWARD OTHERS.

IN PREPARING THIS GUIDE, I HAVE BENEFITTED FROM THE SUGGESTIONS, CRITICISM, AND IDEAS OF MANY MARS MEMBERS. I APPRECIATE ALL OF THAT ASSISTANCE. I AM ESPECIALLY APPRECIATIVE OF THE ASSISTANCE OF BRUCE, AFN4AA, FOR HIS HELP IN ASSEMBLING THE DOCUMENT INTO A PRESENTABLE MARS DOCUMENT.

IF YOU HAVE COMMENTS CONCERNING THIS GUIDE OR ANY ASPECT OF THE TRAINING PROGRAM, PLEASE FEEL FREE TO CONTACT ME AT AFN1TM[AT]MARSREGIONONE.ORG.

V/R  
TOM CARRIGAN/AFN1TM  
AF MARS TRAINING MANAGER



---

# 1 INTRODUCTION

While many MARS stations in all three service branches have developed the ability to handle encrypted MIL-STD M110A (hereinafter, "M110A") traffic and send it by the routing system very proficiently, there are many others who are just getting started. This Guide is for those who are getting started. It presents the essential information in a rational, manageable order so that members don't feel they need to learn too many things all at once. It is also intended that this Guide will address things in the order members will need them; first things first, not last things first. This Guide is, as one reviewer called it, a "roadmap." Specifically, this is the order in which to address things:

- Use of M110A to relay messages
- ACP-127 (Supp 1K) message format
- USMTF
- TRANSEC encryption tool
- Automated Message Terminal (AMT)

## ***1.1 ASSUMPTIONS***

It is assumed that the MARS member has a functioning MARS station and understands proper net operations and discipline, and has been trained in PLAINDRESS message drafting and transmission by voice, all in accordance with the National Training Manual, Allied Communications Publications (ACP's) 121, 125 and 131. Recognizing that the comprehensive nature of each of these publications can make them difficult to work with, some basic information is provided in this Guide about ACP-127 message procedures to help members be able to work with these messages more quickly. This Guide, however, is not a substitute for studying the more detailed treatment of this subject in the ACP's.

This Guide does not instruct the operator on the hardware or software aspects of digital operation. It is assumed that the operator has obtained and installed the necessary hardware and software requirements, as follows:

## ***1.2 REQUIREMENTS***

In order to send and receive messages using MIL-STD M110A, each MARS member will need a computer running a program to generate and interpret the M110A waveform digital mode of transmission using a sound card. This software is called MIL-STD Data Modem Terminal (MS-DMT) and is available at <http://amtog.org/amt/> along with extensive documentation and instructions for installation and operation of the software. Members will also need a radio, and an interface between the radio and computer. An interface that works for other "sound card modes," such as PSK, MT-63, Olivia, etc. is sufficient. This Guide will not detail how to obtain



or connect those, but many MARS members can help. Note that the interface is a device that passes audio between the radio and computer, and triggers the transmitter; a "virtual modem." The interface needed is not a "hardware modem" such as a PK-232 or Kantronics KAM as used by older digital modes such as packet and Pactor. Commonly used interfaces include the SignalLink™, RigBlaster™, among others. Software defined radios and military radios with built-in modems may not need a separate interface.

Another useful digital mode is MT-63, which is supported by several software suites including Digital Master 780™ and FLdigi™, available on the web (<http://www.w1hkj.com>).

These are the minimal requirements for a station to be able to send and receive digital messages that will be passed in joint operations. There are additional software requirements for encrypting and decrypting messages, and there is additional software, which can be helpful for drafting messages. These additional requirements will be addressed in later sections. For now, let's keep things simple.

### ***1.3 CONVENTIONS USED IN THIS GUIDE***

Throughout this Guide, matters relating to information, which is For Official Use Only (FOUO), have been dealt with in a manner to avoid the disclosure of such FOUO information and, thus, avoid the need for FOUO caveats for the entire Guide. Among the practices followed for this purpose are the following conventions:

#### **1.3.1 Call Signs**

In sample messages, all call signs are fictitious. In the event that a call sign used in a sample message is an actual call sign assigned to an actual person or station, the use of that call sign in this Guide does not indicate that the sample message was actually sent by that person or station and no endorsement by the same is implied or intended.

#### **1.3.2 Routing Indicators**

Routing Indicators, which are explained later in this text, are simulated by a string of letters beginning with a percentage sign (%); e.g., %AAAAAA. For accurate information about routing indicators, refer to the *Joint MARS Routing Indicators*, JM 2-203.

#### **1.3.3 Encryption**

Throughout this text, wherever text is shown as encrypted, the encryption is simulated. Also, no specific mention is made of actual Z codes related to encryption in order to keep those out of the public domain. Placement of Z codes related to encryption is indicated by a simulated Z code, "Zxz."





---

## 2 REFERENCE DOCUMENTS

- 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-127 Message Procedures - Expanded Training and Guidance, by Daniel Wolff, Jr. (25 Sep 2014)
- g) ACP-131(F) Allied Communications Publication Communications Instructions - Operating Signals (April, 2009)
- h) Air Force MARS Training Manual 2013-10-31 Rev-AD (October 31, 2013)
- i) JM 2-203 Joint MARS Routing Indicators (October, 2014)
- j) AM 2-310 Army MARS Message and Report Forms (February, 2013)



---

## 3 RECOGNITION OF DIGITAL MESSAGE FORMATS AND PROCEDURES

### 3.1 BRIEF OVERVIEW OF DIGITAL MESSAGE TYPES

There are a number of different message procedures used in MARS. They are commonly referred to by reference to the Allied Communications Publication (ACP) that specifies the detailed rules for each. Examples of each type are shown here only for purposes of recognition. No attempt is made here to detail every variable that can appear in each message type. For complete details, see the ACP manual for the message type in question. All of the ACP Manuals referred to in this Guide are available at [www.marsregionone.org/Pubs.html](http://www.marsregionone.org/Pubs.html), and should be in every MARS member's possession. They are also available elsewhere on the Web by doing a search through Google or Yahoo. The following is only to assist the reader with recognition of various message forms. The forms include PLAINDRESS and CODRESS examples. Abbreviated PLAINDRESS samples are omitted for simplicity.

### 3.2 RECOGNIZING ACP-126 PLAINDRESS MESSAGES

The ACP-126 message procedure was designed for teletype networks and can be used for keyboard-to-keyboard (i.e., peer-to-peer) communications such as can be done within a state or a region net. Samples of ACP-126 PLAINDRESS messages follow below in Figures 3-1 and 3-2.

```
AFA1AA DE AFA1BB NR 002
R 230023Z MAY 2014
FM AFA1BB
TO AFA1AA
BT
UNCLAS
TEXT TEXT TEXT
BT

[8 LINE SPACES]

NNNN
```

**Figure 3-1 ACP-126 PLAINDRESS  
Message Sample**

```
VZCZC1AA002
AFA1AA DE AFA1BB NR 002
R 230023Z MAY 2014
FM AFA1BB
TO AFA1AA
BT
UNCLAS
TEXT TEXT TEXT
BT

[8 LINE SPACES]

NNNN
```

**Figure 3-2 ACP-126 PLAINDRESS  
Message Sample (Produced by AMT)**



Figure 3-1 is a "traditional" ACP-126 message as described in the ACP. Note that the receiving station (AFA1AA) and the sending station (AFA1BB) are shown in the top line. Figure 3-2 is an ACP-126 PLAINDRESS message as produced by the Automatic Message Terminal (AMT) program, which is described later in this text. Note that AMT has added a line of characters at the beginning. ACP-126 messages are useful for intra-state and intra-region communications and administrative messages. ACP-126 messages are not appropriate for out-of-region traffic being sent over the Trans-Global net (JOG). The message elements in an ACP-126 PLAINDRESS message are in an order very similar to an ACP-125 PLAINDRESS voice message and probably appear familiar to most AF MARS members.

### **3.3 RECOGNIZING ACP-127 (US Supp 1K) PLAINDRESS MESSAGES**

The ACP-127 (US Supp 1K, hereinafter "ACP-127") message procedure is designed for forwarding by automatic systems over long distances. In order to accommodate the automated equipment, a number of features were added to the message heading. These include an initial string of characters (VZCZC) to signal the start of a message to the forwarding system, the use of routing indicators instead of, or in conjunction with, plain language addresses, an end of transmission indicator (NNNN) and certain other elements that will be described in detail, later. Throughout this document, routing indicators will be simulated by a letter string beginning with a percent sign (%); e.g., %AAAAAA. Refer to JM 2-203 for actual details on routing indicators.

```
VZCZC1IR002
RR %AAAAAA
DE %BBBBBB #0034 0110023
ZNR UUUUU
R 110023Z JAN 2014
FM ARMY MARS STATION AAR6BB
TO %AAAAAA/AF MARS STATION AFA8AA
BT
UNCLAS
TEXT TEXT TEXT TEXT
BT

[8 LINE SPACES]

NNNN
```

**Figure 3-3 Sample ACP-127 PLAINDRESS Message Using Simulated Routing Indicators**



An example of an ACP-127 PLAINDRESS message using plain language address (PLA) information follows:

```
VZCZC1IR002
RR AFA8AA
DE AFA8BB #0034 0110023
ZNR UUUUU
R 110023Z JAN 2014
FM AF MARS STATION AFA8BB
TO AF MARS STATION AFA8AA
BT
UNCLAS
TEXT TEXT TEXT TEXT
BT

[8 LINE SPACES]

NNNN
```

**Figure 3-4 Sample ACP-127 PLAINDRESS Message Using Plain Language Address (PLA)**

Operators will observe messages being sent in the ACP-127 format, similar to above, but using Plain Language Address (PLA) information such as call signs instead of routing indicators. Without the routing indicators, the message cannot be routed through automated equipment. However, such automated equipment is not presently used in the MARS service. ACP-127 procedure can be used for in state, in-region, or out-of-region message traffic. Messages to be sent out-of-region, however, must use routing indicators.

### ***3.4 MESSAGES WITH ENCRYPTED TEXT***

Either an ACP-126 or ACP-127 PLAINDRESS message may be sent with the text portion encrypted using the MARS OFF-LINE TRANSEC program (hereinafter TRANSEC) in which case, the encryption key would be indicated by a Z code in the same format line of the heading as the precedence and date-time group; e.g., **R 110023Z JAN 2014 Zxx**. Samples of those messages follow (in samples throughout this Guide, encrypted text is simulated and is not intended to decode):



```
VZCZC1BB002
AFA1AA DE AFA1BB NR 002
R 230023Z MAY 2014 Zxz
FM AFA1BB
TO AFA1AA
GR37
BT
RFQJSUWD R1E2C3L5 IZABNUM5 378W2VDD FBX6I4RB 64BGGXH9 K3BX23YA
OGLH8JH9 46PF24J5 IGMSCWF8 CH59DJJD VWDUXM74 L8X1J1OB HTMWCIIG
NBJ4AQ95 CB59V8OB M5YX1AM1 HLJ81VY4 176BB2N3 5384SAPB 6ISPYLT9
L2585GE3 54Z9KJ16 4MPNFPOC Z1CUCEx2 ATOPKTN1 44DWOZCB G4KDGITD
KEL4DPJ8 F4OIQD3F BVFCRV3D NRZSNEA8 R3ZWP79F QXVYFE5H EY91DH3F
OUKWM3DG RFQJSUWD
BT
[8 LINE SPACES]
NNNN
```

Figure 3-5 Example of an ACP-126 PLAINDRESS Message with Encrypted Text

```
VZCZC1IR002
RR %AAAAAA
DE %BBBBBB #0034 0110023
ZNR UUUUU
R 110023Z JAN 2014 Zxz
FM ARMY MARS STATION AAR6XX
TO %AAAAAA/AF MARS STATION AFA8YY
GR37
BT
RFQJSUWD R1E2C3L5 IZABNUM5 378W2VDD FBX6I4RB 64BGGXH9 K3BX23YA
OGLH8JH9 46PF24J5 IGMSCWF8 CH59DJJD VWDUXM74 L8X1J1OB HTMWCIIG
NBJ4AQ95 CB59V8OB M5YX1AM1 HLJ81VY4 176BB2N3 5384SAPB 6ISPYLT9
L2585GE3 54Z9KJ16 4MPNFPOC Z1CUCEx2 ATOPKTN1 44DWOZCB G4KDGITD
KEL4DPJ8 F4OIQD3F BVFCRV3D NRZSNEA8 R3ZWP79F QXVYFE5H EY91DH3F
OUKWM3DG RFQJSUWD
BT
[8 LINE SPACES]
NNNN
```

Figure 3-6 Example of an ACP-127 PLAINDRESS Message with Encrypted Text



### 3.5 RECOGNIZING CODRESS MESSAGES

Both ACP-126 and ACP-127 procedures accommodate CODRESS messages. However, for simplicity, only ACP-127 procedure will be shown because when interoperating with other MARS stations, especially in out-of-region messages, ACP-127 CODRESS is the predominant message form.

A CODRESS message is an alternative to the PLAINDRESS message. In a CODRESS message, the address information, i.e., originator and all addressees, is contained only in the encrypted body of the message. The CODRESS message may be thought of as a wrapper or an envelope enclosing a complete message. The heading of a CODRESS message, i.e., the wrapper, contains only the minimum information necessary to forward the message to, or close to, its destination.

```
VZCZC2JQ024
RR %AAAAAA %BBBBB
DE %CCCCCCC #0024 0392205
ZNR UUUUU
R 082205Z FEB 2014 Zxz
GR 100
BT
4VZJRPMA XVCTMCF5 D8NTXOHH 628AAZ8G ZG3CDWG7 BSSRASY3 S2963846
6YVJN3K2 S9LCOLSA 1WF7LMOF X392FV12 6C4NBRC3 J489SHB8 FFVEDTUH
38NY349B F154TOS1 K2H36UJ1 5RFEPRTG 2UNUEJVG W3VVUJHC JZ6W9YH5
CBFBS211 9H26I4PD KRIMQ6B7 J8T5AAZ5 MV6Y2T81 JD826MHA SQMYR862
VC59TFA1 YEWN5EQ3 R6PY92L1 NV43CTT2 R6IP8IKE NILQOI9D OBRN5W4D
OA356QS1 CUOUDCU3 V38R43LD 4UDUERH1 4KBOX6R4 RHCLHKDF KSHNET97
5QIL3DVC I88X28Q3 Q5V1KF31 FZMS2YOG RLI7O8U3 A61VGS81 1FSPVQB4
Y4NA5Y48 RMHW5I38 XPOE3E1A DIN8E2GF JBL87S1D ES2HSU72 YD6SPP1H
VCNXXYGE HVNV46AD 6HNMVG2 FY5F9SDA LCBQATQB EEK11RH7 ZWYPDHC5
NER3W5IF UZMT1DD7 5P8TKRW2 MYNFBMP7 OANSKZR9 GPFH6JH6 J23R2OJ6
DLZABLZG POLARHP1 SK1CWMCB JY9OV2NG AHKLLVV7 5IVZJ6SH IYTEWLEG
4GKT19KG 5YTMEV1E O5LHRWGE DMDZ25HF QXWWDCE8 9JACK5LA AWAA6M1G
BMXKUGAB HN4EVNGA IHJVONPH WB1KP3LA KJSF63N2 6JC1GDY7 N7H4C3UH
ODEDILHD 6TNORXXC LY04GVSA DXUQ3AMG O3A3E1VE A4GOBQOG AS9QXQ18
5SIN9NE6 4VZJRPMA
BT
#0024
NNNN
```

Figure 3-7 Example of an ACP-127 CODRESS Message



---

The address information shown in the CODRESS heading will be only routing indicators with no associated plain language addresses. Routing indicators (RI) can be thought of as analogous to zip codes. The RI in the CODRESS message heading is only intended to get the message to a place where it can be refiled into another message system (such as a region net or state net) or to a facility or agency where the addressee will be found. When the message arrives there, it can be decrypted and delivered to the actual addressee(s). The encrypted portion of the message contains a complete PLAINDRESS message, as illustrated previously, starting with Format Line 1 (VZCZC...) and ending with NNNN. The heading of the encrypted message will contain sufficiently detailed address information to allow the message to be delivered to the actual addressee(s).



## 4 SIMPLE RELAY OF MESSAGES

Once a member has an operational station with the capability to send and receive M110A messages, he/she can make an important contribution to the MARS mission and to MARS exercises by relaying messages either within a single net or as a Minor Relay Station taking traffic between the Trans-Global Net (JOG) and a regional net. (See *Joint MARS Routing Indicators Manual*, JM 2-203). This Section will discuss the three steps to be taken to relay an M110A message. These steps are:

- 1) Verify that the message was received correctly;
- 2) Change Format Line 1 to indicate the operator's own station and serial number;
- 3) Copy and paste the message into the Transmit window and send.

### 4.1 STEP 1. VERIFY THAT THE MESSAGE WAS RECEIVED CORRECTLY.

M110A is a digital mode, which requires a reasonable signal-to-noise ratio--approximately the same as would be required for reliable voice communications. Thus, it is not uncommon for errors to occur in the transmission of data by M110A. Usually, any errors in reception are quite obvious. The sample ACP-126 CODRESS message in Figure 4-1 below illustrates the type of odd characters that print when errors occur in reception of M110A. Note the last several characters on the last line show where "good copy" ended.

```
2300Z
AAM1xx DE AAT1yy NR 007
R 272300Z SEP 2013
GR67
BT
RFQJSUWD R1E2C3L5 IZABNUM5 378W2VDD FBX6I4RB 64BGGXH9 K3BX23YA
OGLH8JH9 46PF24J5 IGMSCWF8 CH59DJJD VWDUXM74 L8X1J1OB HTMWCIIG
NBJ4AQ95 CB59V8OB M5YX1AM1 HLJ81VY4 176BB2N3 5384SAPB 6ISPYL9
L2585GE3 54Z9KJ16 4MPNFPOC Z1CUCX2 ATOPKTN1 44DWOZCB G4KDGITD
KEL4DPJ8 F4OIQD3F BVFCRV3D NRZSNEA8 R3ZWP79F QXVYFE5H EY91DH3F
OUKWM3DG SYULVPY9 ZWYBQD__Ê_í_Ñæ_
```

**Figure 4-1 Example of a Received CODRESS Message With Errors**

A MARS member only needs to have MS-DMT running on the computer to receive an M110A message. (Note that it is not necessary to have the Automated Message Terminal program installed or running at this point, although it is not a problem if it is running.) The NotePad program or a similar text editor program can be used to add "fills" to the message. The OFF-LINE TRANSEC program will be necessary for decrypting, but is not necessary for





receiving or relaying messages. When the opportunity presents itself to relay, the process is pretty straightforward.

#### **4.1.1 Verifying Reception Of Plain Language Messages**

If the message is sent in plain text, errors will be apparent from a simple reading of the message. Unintelligible characters will usually indicate errors.

If part of the message is received correctly, and part is not, the same process is used to obtain "fills" as is used in voice modes. The receiving station does not ROGER for the message until it has been received free of errors. To obtain fills, the receiving station should first copy and paste the message as received into NotePad, or a similar simple text editor program (not a sophisticated word processor that will insert a lot of format codes into the text). The receiving station asks the sending station to "SAY AGAIN . . ." to obtain the fills needed (See the National Training Manual for details about this). If most of the message was not received, it might be most efficient to ask the sending station to send the entire message again. However, this should be avoided if only a smaller portion of the message was missed. It is in the nature of M110A transmissions that the longer the transmission, the more prone to error they are. The shorter the transmission, the better the chances for success. For the same reason, higher bit rates (i.e., 600 or 1200) often work better than low bit rates. As fills are received correctly, they can be copied and pasted from the MS-DMT window into the text editor. When all of the text has been received, the text editor program can be used to edit out any incorrect characters and to realign the text to make it ready for transmission. Care must be taken not to change the content of the message from the original. Accuracy in relaying messages is our highest obligation.

#### **4.1.2 Verifying Reception Of Encrypted Messages**

If the message is encrypted, and the receiving station is capable of decoding it, the receiving station may decode it to verify a good reception. This is the most reliable way of determining that it has been received correctly.

However, there may be instances in which the receiving station is not authorized to decode the message. The receiving station can still detect any errors quite easily, even if the message cannot be decoded. First, the same process as described above should be followed to obtain "fills" of all the data transmitted. In a message encrypted with OFF-LINE TRANSEC, the text will consist of a number of Groups.

- Each Group will have exactly eight characters.
- Each character will be either a capital letter or a numeral.
- There will be no special characters in the body of the message such as (\$ % @ ^ < +) etc., nor any machine code characters not found on a keyboard.



- 
- There will be seven Groups in each line of the text, except, perhaps, the last line.
  - The number of groups should match the Group count in the heading.
  - IMPORTANTLY: The first Group in the text (i.e., the first group after the first BT) MUST BE IDENTICAL to the final Group in the text.

If all of these checks are correct, the message was almost certainly received correctly.

Once the message has been received correctly, all the fills have been made, and it has been ROGERED for, the next step is to change Line 1.

#### ***4.2 STEP 2. EDIT LINE 1 TO INDICATE YOUR STATION AND SERIAL NUMBER***

In relaying an ACP-127 message, the relaying station would make a change in Format Line 1 following the "VZCZC." The relaying station would change the six characters following VZCZC to reflect his/her own station and serial number. The relay station is indicated by the first three of these six characters that include the region number and last two letters of the sending stations individual (not billet) call sign. (In ACP-127, this is called the Channel Indicator.) The last three digits are the serial number set by the relaying station based upon the number of messages sent since the preceding Zulu midnight. Example: AFA2XX sending his/her 23rd message since 0001Z would make Line 1 read as follows:

**VZCZC2XX023**

**NOTE: This is the only part of the message that may be changed in any way during the relay process. Every other line in the message must remain exactly as received.**

More information about ACP-127 messages is in the following ACP-127 Message Format of this Guide.

#### ***4.3 STEP 3. COPY AND PASTE MESSAGE INTO MS-DMT TRANSMIT PANEL***

Once the message has been received completely, assembled in the text editor and the sender (channel indicator) and message number are changed to reflect your station, the message is ready to be copied and pasted into the transmit window of the MS-DMT (M110A) program. It can then be relayed to the desired station in accordance with Net Control instructions.

It bears repeating that even operators who can only do that much can make a big impact on the success of an exercise or an actual operation.

In the next Section, we will discuss the construction of ACP-127 messages.



---

## 5 ACP-127 MESSAGE PROCEDURE

[Adapted from Army MARS Training Manual AM 2-203. Throughout this section, Routing Indicators (RI) will be simulated by letter sequences starting with (%) to avoid the need to protect FOUO information. E.g., %AAAAA. Information about RI's should be obtained from the *Joint MARS Routing Indicators* manual, JM 2-203. Grateful acknowledgement is made for the work of Daniel V. Wolff, Jr. in his paper *ACP-127 Message Procedures - Expanded Training and Guidance*, Sept. 2014, from which much of this material came.]

### 5.1 ROUTING INDICATOR PLAN

The Joint MARS Routing Indicator Plan is designed to be used in conjunction with national, international, and regional MARS networks. Routing Indicators (RI's) indicate a destination down to the state level. A Routing Indicator is a destination approximation, conceptually similar to a postal zip code, not a precise address. The Joint MARS Routing Indicator Plan is designed in accordance with ACP-121 and APC-127 and is suitable for routing CODRESS or encrypted messages.

A routing indicator is not assigned to each MARS station or potential customer. Routing Indicators are assigned to the State and Region level. The Routing Indicator Plan is intended to support long haul movement of messages to the region or state relay or tributary stations, where they are refilled and delivered to addressees on local networks.

In CODRESS messages the originator and addressee are included in the coded portion of the message. These instructions will allow stations to handle the message without knowing the actual addressees. Decoding the message is not necessary for long haul relay. Only when the message arrives to its destination region or state will decoding be required to find the addressee information for final delivery. Notwithstanding this, some relaying stations with proper authorization will decode a message to verify accurate reception.

### 5.2 ACP-127 DETAILS

ACP-127 messages are designed specifically for relay through human or computer operated facilities. The ACP-127 message format is used in conjunction with the Routing Indicator (RI) Plan and uses RI to direct messages to their addressees.

For those familiar with ACP 126 messaging, pay particular attention to the use of Format Lines (FL) 2, and 3. Although these lines can be used for station-to-station calling as in ACP-126, or full routes may be specified, it is unnecessary because ACP-127 networks are structured so that only the destination station's RI is required to determine routing.



---

*Format Line (FL)                      Content    (RI's are simulated, refer to JM 2-203)*

FL1	VZCZC1IR001
FL2	RR %AAAAAA
FL3	DE %BBBBBB #0034 0150505
FL4	ZNR UUUUU
FL5	R 150505Z JAN 2014
FL6	FM AF MARS STATION AFA1xx
FL7	TO %AAAAAA/ARMY MARS STATION AAR8xx
FL11	BT
FL12	UNCLAS
	MSGID/GENADMIN/ARMY MARS STATION AAR6xx//
	SUBJ/TEST MESSAGE//
	GENTEXT/REMARKS/THIS MESSAGE DEMONSTRATES ROUTING.//
FL13	BT
	[8 line spaces]
FL16	NNNN

**Figure 5-1 Example of ACP-127 PLAINDRESS Message Components Showing Format Lines (FL) to the Left**

(The reader will note that in the sample message, the lines in the text contain SLANT BARS (/) and double slant bars (//) at certain places. These characters indicate a USMTF message format, which is mentioned in Section 7 U.S. Message Text Format (USMTF) of the Guide.)

Line-by-line detail of an ACP-127 PLAINDRESS Message (FL = Format Line)

### **5.2.1 Format Line 1 - Transmission Identification**

This format line indicates the start of transmission. This line is unique to each station handling the message and the previous station's FL1 shall not be relayed or retransmitted with the message.

Line 1 consists of three elements:

- (1) The Start of Message Indicator: **VZCZC** – An indicator employed to activate automatic message equipment or software.
- (2) Channel Indicator: For MARS messages, this is a three-character abbreviation of the sending/relaying station's call sign. Each MARS station sending this message will insert his/her region number and the last two letters of his/her individual call sign,



---

replacing any previous channel indicator. (e.g., Station AFA1IR is abbreviated "1IR").

- (3) Sending station's message serial number: This is a three-digit serial number assigned by the sending/relaying station and based upon the number of messages that station has sent since the preceding midnight Zulu (i.e., 0001Z). In the following example, this is AFA1IR's Number 003 since the previous midnight Zulu.

Line 1 example: **VZCZC1IR003**

### 5.2.2 Format Line 2 - Precedence and Routing Indicator For Message Being Sent

This format line indicates the precedence of the message and the routing indicator (RI) of the destination station that may be the addressee, or a point of re-file into another message system which services the addressee, for instance a region net or state net, or a facility or agency where the addressee may be found. Bear in mind that RI's are analogous to zip codes, not precise addresses.

Since the relationships of all tributary, minor relay and major relay stations are known by reference to the *Joint Routing Indicators Manual* (JM 2-203), a message originating from any RI can be routed to the destination RI without further instruction.

The precedence indicator is written twice but must be the same in both instances. In the situation where a message has multiple precedences for different addressees, the highest precedence will be used and shown twice in this line.

Line 2 consists of two elements:

- (1) Precedence Pro sign (twice):

- RR - Routine;
- PP - Priority; or,
- OO – Immediate; and

- (2) Routing Indicator of Destination Station or point of re-file into another message system.

Line 2 example: **RR %AAAAAA** (NOTE: Routing Indicator is simulated, refer to JM 2-203).

### 5.2.3 Format Line 3 - Sending Station's RI, Serial Number and Filing Time

Format line 3 indicates the routing indicator (RI) of the station that prepared the message for transmission on the network. This may or may not be the same as the last station to transmit it, shown in FL 1, the originating station which first put the message into the MARS system, or the originator (author) shown in FL 6.



---

Line 3 consists of four elements:

- (1) Prosign DE (meaning "from").
- (2) Routing Indicator of the station that formatted the message for ACP-127 transmission.
- (3) Station Serial Number: A 4-digit message reference number allocated in sequence by the station formatting the message for ACP-127 transmission preceded by a number sign (#). This 4-digit number stays with the message and does not change as the number in FL 1 changes.
- (4) Filing Date-Time: The Julian Day and time the message is prepared. The Julian date is the day of the year indicated by a three-digit numeral between 001 and 366 (001 = January 1st). The 3-digit Julian date is run together with the 4-digit time the message was prepared. The date and time are always in reference to Zulu time, but the "Z" is omitted.

Line 3 example: **DE %BBBBBB #0034 0150505** (NOTE: RI is simulated, refer to JM 2-203).

#### 5.2.4 Format Line 4 - Transmission Instructions

This format line indicates specific transmission directions not apparent in other components of the message headings.

Line 4 consists of one element:

- (1) Security Warning. In MARS messages, this will usually be "**ZNR UUUUU**" which means the message is UNCLASSIFIED and may be forwarded without change by radio or non-approved circuit. Alternatively, if a PLAINDRESS message (with encrypted text) contains FOUO or personally identifiable information (PII), this signal would be "**ZNY EEEEE**" meaning "Do not forward this message unencrypted by radio or non-approved circuit." (Note that for the heading of a CODRESS message, this warning will be "**ZNR UUUUU**" as the code groups themselves are not classified. However, in drafting the message within the encrypted body of the CODRESS, this warning would be "**ZNY EEEEE**" to signal that encryption is required.)

Line 4 example: **ZNR UUUUU**; or alternatively, **ZNY EEEEE**.

(Note that the ACP-127 Procedure also provides that Format Line 4 is the place for other Operating Signals related to message movement, such as ZOC, ZOY, ZOK, ZOZ, ZOT, ZEH, ZDG, ZEP, among others. These are not usually encountered in MARS messages. Just be aware that they may be there in some messages originated outside of MARS. Do not be confused, however, about the placement of Z signals related to encryption, which must be placed on FL5).



---

### 5.2.5 **Format Line 5 - Precedence and Date Time Group**

The information on this format line is from the originator of the message, and indicates the originator's precedence and date time group. This format line may also contain any operating instructions from the originator. If the text of the message is encrypted, a Z signal related to the encryption is shown on this line.

Line 5 consists of several elements:

- (1) Precedence Prosign: R - Routine; P - Priority; O – Immediate
- (2) Date Time Group in standard form.
- (3) Originator's Operating Signals, if any.

Line 5 example: **R 150505Z JAN 2014 Zxz** ("Zxz" simulates the Z code used to indicate the encryption key used.)

(Note that the ACP-127 Procedure also provides that Format Line 5 is the place for other Operating Signals related to message content, such as ZYI, ZYG, ZYS, ZFF, ZFG, ZFD, among others. These may not be encountered in MARS messages. Just be aware that they may be there in some messages originated outside of MARS.)

### 5.2.6 **Format Line 6 - Plain Language Address OR Routing Indicator of the Originator**

This format line indicates the originator of the message. This is the person who wrote the message, or the person under whose name the message was drafted.

Line 6 consists of two elements:

- (1) Prosign FM:
- (2) Address components, Plain Language Address (PLA) of the originator **OR** the Routing Indicator of the originator, **BUT NOT BOTH**. If the originator is an individual MARS member station, the words ARMY MARS STATION or AF MARS STATION followed by the member's full call sign (not billet call sign). Alternatively, a Routing Indicator may be used, without a PLA associated with it.

Line 6 example: **FM AF MARS STATION AFA1xx**

### 5.2.7 **Format Line 7 - BOTH The Routing Indicator AND Plain Language Address of the Addressee separated by (/)**

This format line indicates the action addressee(s) of the message. This is the person or persons to whom the message is intended.

Line 7 consists of four elements:

- (1) Prosign TO;





- 
- (2) Routing Indicator (RI) of Addressee. The addressee's RI should normally be the RI for the State or Country in which the addressee is located,
  - (3) SLANT BAR (/),
  - (4) Plain Language Address of the Addressee: If the addressee is an individual member MARS station, the words ARMY or AF MARS STATION followed by the member's full call sign (not billet call sign). For non-MARS addressees, this would be a full name, street address and contact information.

Line 7 example: **TO %AAAAA/ARMY MARS STATION AAR8xx** (RI is simulated, refer to JM 2-203).

#### **5.2.8 Format Line 8 - INFO addressee(s)**

Apply the same rules as Line 7. Includes, ZEN addressee(s). ZEN addressees receive the message by other means, so complete address information is not necessary.

Line 8 example: **INFO %CCCCC/ARMY MARS STATION AAR4xx** (RI is simulated, refer to JM 2-203)

Example: ZEN/AF MARS STATION AFA1IR (Note the absence of the RI, because it is sent by other means. Also, note the SLANT BAR (/) separating the signal ZEN from the Plain Language Address (PLA)).

#### **5.2.9 Format Line 9 - Exemptions**

This line is only used when exempting one or more addressee(s) from a collective address used on Format Line 7. (Not usually encountered in MARS messages)

#### **5.2.10 Format Line 10 - Group Count**

Group count, normally omitted, except always present for encrypted text and CODRESS messages.

Line 10 example: **GR128**

#### **5.2.11 Format line 11 - Break**

Break indicating the start of the message text. **BT**

#### **5.2.12 Format Line 12 - Message text**

NOTE: The classification UNCLAS must be the first word of the text on a line by itself, unless it is accompanied by "FOUO" (meaning For Official Use Only) or "EFTO" (meaning Encrypted For Transmission Only).

Line 12 example: **UNCLAS FOUO**





---

#### 5.2.12.1 Rule For Pagination of Long Messages

For longer messages, Format Line 12 may also contain section and page information. Paging lines, in plain language, must be inserted between the lines of code groups. All messages exceeding 20 lines of heading and text, beginning with Format Line 5, will be divided into pages for transmission. A maximum of five pages following the first page with the header (i.e., a total of six pages) per message is permitted. If a message is longer than that, it must be divided into SECTIONS, transmitted as separate messages.

Here is an example of a paging line:

**PAGE 2    %BBBBBB    #0034 UNCLAS** (Routing indicator is simulated. It is the same as used on Format Line 3)

#### 5.2.13 Format Line 13 - Break

Break indicating the end of the message text. **BT**

#### 5.2.14 Format Line 14 - (omitted deliberately, not normally used)

#### 5.2.15 Format Line 15 - Serial Number

The entry on this line consists of the four-digit station serial number, taken from Format Line 3, preceded by the number sign (#).

Line 15 example: **#0034**

#### 5.2.16 Format Line 16 - End of Message Indicator

**NNNN**: An indicator used to signal end of message to automatic message equipment. NNNN is required when VZCZC is used in Line 1. Eight line spaces (enter keys) should be placed between Line 15 and Line 16.



---

## 6 ACP-127 CODRESS MESSAGE

[Adapted from "ACP-127 Message Procedures - Expanded Training and Guidance" Rev. 25 Sep 2014, by Daniel V. Wolff, Jr, whose assistance is gratefully acknowledged].

A CODRESS message is a form of encrypted message where all of the address information, including the originator and all addressees, is contained in the encrypted portion of the message and only minimal information is shown in the header to enable routing to the addressees. The CODRESS message may be thought of as a wrapper or an envelope enclosing a complete message. The heading of a CODRESS message, i.e., the wrapper, contains only the minimum information necessary to forward the message to, or close to, its destination. Besides protecting FOUO or PII information contained in the body of the message, the purpose of the CODRESS message is to hide the address components, the originator and all addressees.

Usually, the address information shown in the CODRESS heading will be only routing indicators with no associated plain language addresses. Routing indicators (RI) can be thought of as analogous to zip codes. The RI in the CODRESS message heading is only intended to get the message to a place where it can be refiled into another message system (such as a region or state net, or to a facility or agency where the addressee will be found) where it can be decrypted and delivered to the actual addressee(s). The encrypted portion of the message contains a complete heading starting with Format Line 1, as well as text, formatted as a PLAINDRESS message, as illustrated previously. That encrypted heading will contain sufficiently detailed address information to allow the message to be delivered.

### 6.1 ACP-127 CODRESS PROCEDURE

#### 6.1.1 ACP-127 CODRESS Format Lines 1, 2, and 3

Format Lines 1, 2, and 3 are prepared exactly the same way as for a PLAINDRESS ACP-127 message. Refer to Section 5 ACP-127 Message Format for an explanation.

Here is an example of these formatted lines:

**VZCZC1AB001**

**RR %AAAAAA %BBBBBB**

**DE %CCCCC #0002 0331845**



---

### 6.1.2 ACP-127 CODRESS Format Line 4

For a CODRESS message, Format Line 4 will always contain the security warning "**ZNR UUUUU**." The security warning "**ZNR UUUUU**" is used for CODRESS messages because the code groups that are entered in Format Line 12 are unclassified, non-FOUO, and don't require protection. If additional transmission instructions referring to destinations are needed on Format Line 4 -- such as ZOF (meaning "relay this message to...") -- only address groups, call signs or Routing Indicators may be used. **The use of Plain Language designators are prohibited for CODRESS messages on Format Line 4.**

Example of CODRESS message Format Line 4: **ZNR UUUUU**

## 6.2 ACP-127 CODRESS FORMAT LINE 5

Format Line 5 is prepared exactly the same way as is for a PLAINDRESS message. Refer to Section 5 ACP-127 Message Format of this Guide for an explanation. An optional operating signal is normally also included at the end of this line to inform receiving stations which offline encryption key set is needed to decrypt the message. For a detailed explanation of applicable operating signals, contact your MARS leadership (Training Officer, State Director, Region Director, etc.).

Example of CODRESS message Format Line 5: **R 031840Z FEB 2014 Zxz**

### 6.2.1 ACP-127 CODRESS Format Lines 6, 7, 8 and 9

Format Lines 6, 7, 8, and 9 (From, To, Info, and Exempt addresses) are not included in a CODRESS message header. Besides protecting FOUO or PII information contained in the body of the message, the purpose of the CODRESS message is to hide the address components, the originator and all addressees.

### 6.2.2 ACP-127 CODRESS Format Line 10

Format Line 10 in a CODRESS message will consist of the Prosign "GR", followed by the number of encrypted groups contained in Format Line 12.

Here is an example of CODRESS message Format Line 10: **GR 131**

### 6.2.3 ACP-127 CODRESS Format Line 11

Format Line 11 will be prepared exactly the same way as is for a PLAINDRESS message: **BT**.



---

#### 6.2.4 ACP-127 CODRESS Format Line 12

In a CODRESS message, Format Line 12 (the "body" of the message) will contain the code groups created by the off-line TRANSEC tool from the PLAINDRESS message being sent. Note that these code groups will contain the complete header of the PLAINDRESS message, starting with Format Line 1, as well as the "text" of the PLAINDRESS message, which is being sent. The first step is to encrypt the PLAINDRESS message using the offline TRANSEC tool. Next, copy and paste the code groups into Format Line 12 of your CODRESS message (Note: training on the offline TRANSEC tool is covered separately). After the encryption is complete, the group count, obtained from the OFF-LINE TRANSEC software, is entered on Format Line 10 of the CODRESS message.

For longer messages, Format Line 12 may also contain section and paging information. Paging lines must be inserted between the lines of code groups. All messages exceeding 20 lines of heading and text, beginning with Format Line 5, will be divided into pages for transmission. A maximum of five pages following the first page with the header (i.e., a total of six pages) per message is permitted.

If a message is longer than that it must be divided into SECTIONS, transmitted as separate messages. This example message will have only two pages.

Here is an example of a paging line: **PAGE 2   %CCCCC   0002 UNCLAS**

Note:   Paging lines are sent unencrypted between lines of encrypted groups and need to be deleted before the encrypted groups can be decoded.

#### 6.2.5 ACP-127 CODRESS Format Line 13, 14, 15, and 16

Format Line 13, 14 (omitted), 15, and 16 (final BT through NNNN) will be prepared exactly the same way as is for a PLAINDRESS message. Refer to Section 5 ACP-127 Message Format of this Guide, ACP-127 Message Format, for an explanation.

Figure 6-1 is an example of a complete ACP-127 CODRESS message.



```
VZCZC1AB001
RR %AAAAAA %BBBBBB
DE %CCCCC  #0002 0331845
ZNR UUUUU
R 031840Z FEB 2014 Zxz
GR 131
BT
IGL8XKOC 7OR6A9P2 LE944GLC 9VEC23A1 6KGZ22VA PA6RIQ22 9QIWNT9
FWDGRSH1 SST1WFRF T9MTY5K1 3DS8ZTR4 D1ODAI6H VNG118Q1 K54ESDIF
83BXQMP2 F2LN2UH3 VSD5E5B8 ZZWL14E2 YBXV4VQF R811EY68 MHRMYGC9
B4MJ7CO3 41CCWCP8 WTB4KXIC WCAA9THG V74HJPWA 8EMSRE43 LSLX1K9H
VXLRY43G 2DSGY4FG CXZARDI9 YK9BSWC7 YQL1MDZF P3S1UEQD LX6WSVXB
DL81Q6OB 15GYXMQ2 A87WUOWE WBFNEOY1 8YOWW18C FOV5Q1T2 DIGT9RD8
P18678Q2 I3JP7ZZG 6BUJOTR6 8ZWCZHX7 H7IR4VP5 LR3G6DW2 QDNDDEPI3
UD6BLCZD H74I98H8 638A9UE3 HTQJEPF4 H34Q9Z8A BHSYVO8E CR9LS339
VLNUHE48 732QH543 7GI8AZ17 1JATZW3D C45R8L5H BM2N65VD D9GERT3G
SAYU59F5 UPT5MW5B 53HI3Z55 E69F6XNH X66T7YJ8 I9ZWW5R5 LBFMMKLH
VRCB6R5B 8LA2Q314 E7YWSU8D CP1K2TC4 R6LLY5AA CVG3LO92 CDL9C4J6
1W193KF5 RHFQUKA6 8KJ1PPW6 E15XFMEG KSMRIBS8 UOC17BHE 6V4KTR3G
RI6IGLFC 7L31Z1Z6 7GQ5H5G7 X7YRDYFE HYR8WCM8 W4UCPUL7 Q4HNCLE3
QVITUC12 OFNQJUY1 1OX8RCH3 Q3RYWPV6 SLY5REO7 QCIJ2FJH VAMYVQE6
49P4SVVA 5Z1NQGP1 WMDFKRN4 Q76JVLNG FKYIR59C 4V54CCG5 IKKKVI8C
LWDL54W1 CGH9WDX2 GI3P6C4D 9GITFEOB SHJ54RG4 84MVT83 3AQGHNQ4
3ER7DNUE P33SRJ84 NI4L7IZH P1EU8131 1FQF6089 YYJRJRC5 T5MM16D7

PAGE 2 %CCCCC #0002 UNCLAS

TTFBYYAB 5W6RT8DC W5HICPAG BTCFQF2H ACPHWKTA I6DQAY9B RDWPAHN3
12GIRPC4 BSLA4TDA JIHTXKH2 VA2LNZQ5 IGL8XKOC
BT
#0002
[8 line spaces]
NNNN
```

Figure 6-1 Example of a Complete ACP-127 CODRESS Message (Code Groups Are Simulated And Do Not Actually Decrypt)



---

## 7 U. S. MESSAGE TEXT FORMAT (USMTF)

Air Force MARS members have not been universally trained on formatting messages using the MIL-STD-6040, United States Message Text Format (USMTF). Messages of this type, however, are common among Army MARS stations. Furthermore, use of USMTF is mandatory for all U. S. military in accordance with Chairman of the Joint Chiefs of Staff Instruction, CJCSI 6241.02C (current as of June, 2014). Air Force MARS operators; therefore, will need to become familiar with the use of these message formats.

USMTF messages are recognizable by the frequent use of SLANT BARS (/) and (//) in lines of text. The following is an example:

```
VZCZC1AB001
RR %AAAAAA %BBBBBB
DE %CCCCC #0002 0331845
ZNR UUUUU
R 031840Z FEB 2014 Zxz
GR 131
BT
UNCLAS
EXER/MARS COMEX//
MSGID/WXOBS/%CCCC//
WEATHLOC/ICAO:KEWR//
OBS TIME/290829Z//
WIND/111/10// VSBY/200FT//
CLDLR/-/LYR:SKC//
TEMP/MAXTEMP:44/MINTEMP:36//
ALTSTG/HG:28.40//
```

**Figure 7-1 Example of a USMTF Message**

Training Manual *Army MARS Message and Report Forms*, AM 2-310 V-3, February, 2013, contains a complete discussion of this message format system and a number of defined reports that use it. AM 2-310 contains FOUO information. Because of the effort to maintain an unrestricted distribution of this Guide, a full explanation of USMTF messages will not be provided here. However, until an Air Force manual on this subject is available, Air Force MARS members are encouraged to obtain and review AM 2-310 to fully understand the USMTF system. The manual will be available through the chain of command.

Notwithstanding the lack of AF MARS training on these message types up to the present, there is no prohibition against AF MARS members relaying messages of this type, nor originating them once they understand how.



---

## 8 MARS OFF-LINE TRANSEC

Most MARS members have now been provided with an off-line encryption/decryption program called MARS OFF-LINE TRANSEC. Information about its use should be obtained through chain of command channels to preserve the integrity of the system.



---

## 9 AUTOMATED MESSAGE TERMINAL (AMT)

The Automated Message Terminal (AMT) application is an off-line tool for formatting messages in the various formats discussed above. It also has the capability of connecting to the MS-DMT software running on the same computer to simplify the transfer of data between the MS-DMT and the AMT, thus, reducing the cut and paste steps needed to use the two programs together. The Automated Message Terminal program is downloadable from [www.amtog.org](http://www.amtog.org) where detailed instructions for installation are available.

MARS operators are strongly encouraged to install and use this program as an aid to message drafting. However, beware that the program does not prevent mistakes from being made in formatting. Operators need to understand the message procedures they are using and review the messages created using AMT to ensure that the messages are created to the satisfaction of the operator using the software.