United States Mission Control Center
(USMCC)

National Rescue Coordination Center (RCC) and Search and Rescue Point of Contact (SPOC)
Alert and Support Messages

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Table of Contents

1 Introduction 1-1

1.1 Overview of Cospas-Sarsat
1.2 Document Objective
1.3 Reference Documents

2 Summary of Messages 2-1

2.1 Overview and Methodology
2.1.1 Alert Messages
2.1.2 Support Messages
2.2 Alert Messages
2.2.1 406 MHz Ship Security Alert System (SSAS) Alert Messages
2.2.2 406 MHz Alert Messages for Unknown Beacon Types
2.3 Support Messages

3 Explanation of Alert Messages 3-1

3.1 121/243 MHz First Alert
3.2 121/243 MHz Notification of Ambiguity Resolution
3.3 121/243 MHz Composite Position Update
3.4 121/243 MHz Missed Pass/Site Status Report
3.5 406 MHz Beacon Unlocated First Alert
3.5.1 406 MHz Beacon Unlocated First Alert (SSAS)
3.6 406 MHz Beacon Located First Alert (Ambiguity Unresolved)
3.6.1 406 MHz Beacon Located First Alert (Ambiguity Unresolved, Unknown Beacon Type)
3.7 406 MHz Beacon Located First Alert Update (Ambiguity Unresolved)
3.8 406 MHz Beacon Position Conflict (Ambiguity Unresolved)
3.9 406 MHz Beacon Notification of Ambiguity Resolution
3.10 406 MHz Beacon Composite Position Update / Update with Position Conflict
3.11 406 MHz Beacon Missed Pass/Site Status Report
3.12 406 MHz Beacon Missed Pass Counter Reset
3.13 USA 406 MHz Beacon Detected Outside US AOR
3.14 406 MHz Beacon Encoded Position Update

4 Explanation of Support Messages 4-1

4.1 Narrative Message
4.2 Alert Query
4.3 406 MHz Beacon Registration
4.4 LUT Pass Schedule
4.5 Beacon-LUT Mutual Visibility Schedule

5 Message Transfer Specifications
5.1 FTP File Naming Specifications
5.2 FTP File Destination Names

Appendix 1	Definitions	A1-1
Appendix 2	Beacon Registration Data Block Formats	A2-1
Appendix 3	International RCC and SPOC Message Formats	A3-1
Appendix 4	Alert Message Structures (Limited Distribution)	A4-1
Appendix 5	Support Message Structure (Limited Distribution)	A5-1

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National Rescue Coordination Center (RCC)
and Search and Rescue Point of Contact (SPOC)

Alert and Support Messages

1 Introduction

1.1 Overview of Cospas-Sarsat

Cospas-Sarsat is an international satellite system for search and rescue established and operated by Canada, France, Russia and the USA. The system uses radio-beacons, either manually or automatically activated, to alert search and rescue forces of a person in distress, an aircraft crash or maritime distress. Signals from radio-beacons are transmitted to low-earth orbiting or geo-stationary orbiting satellites. The signals are then relayed to earth ground stations called Local User Terminals (LUTs) and eventually to Mission Control Centers (MCCs). The USMCC is the focal point for Cospas-Sarsat operations in the United States. The USMCC collects and processes data from national LUTs and foreign MCCs. It then distributes alert data to national Rescue Coordination Centers (RCCs) and SAR Points of Contact (SPOCs) and foreign MCCs.

Figure 1.1 presents an overview of the Cospas-Sarsat System.

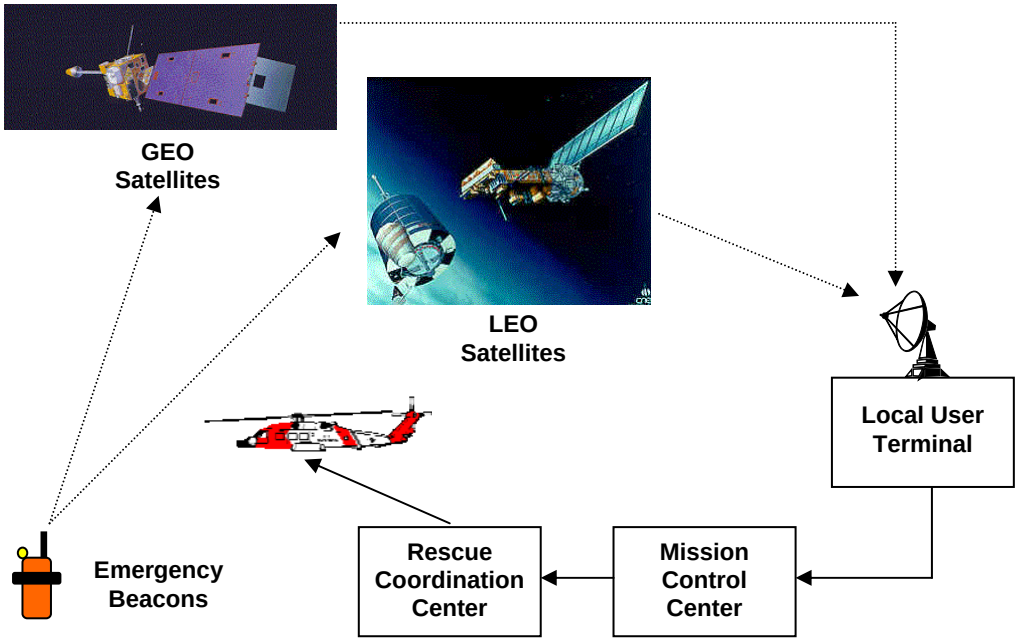

Figure 1.1: Overview of Cospas-Sarsat

1.2 Document Objective

This document describes the messages transmitted to national RCCs and national SPOCs. The document contains general information in Section 1 and information about the methodology used to develop the alert messages in Section 2. Sections 3 and 4 contain examples of alert and support messages and an explanation of the information contained in the messages. These sections are intended for users of the data.

The document is structured so that the user may use it as a reference and go directly to a specific type of alert message (in Section 3). In order to allow for the document to be used in this manner details on the information is duplicated under each type of alert message.

The Appendices to this document contain the following information:

- Definitions of terms used in messages
- Beacon registration data block formats
- International RCC and SPOC message formats
- Alert message structures (distribution of this appendix is limited to RCCs automatically processing USMCC messages)
- Support message structures (distribution of this appendix is limited to RCCs automatically processing USMCC messages)

All RCC and SPOC personnel should thoroughly familiarize themselves with the contents of this document. Cospas-Sarsat Alert messages provide timely information regarding potential distress situations.

> *In order to assist the reader, key points or subtleties of the Cospas-Sarsat System are provided in blocked areas.*
>
> *The descriptions in the following sections contain text in upper case to indicate the character string as it appears in the message. For example FREQuency indicates that the frequency appears in the message with a label FREQ.*

1.3 Reference Documents

More information on the content of alert message data elements can be found in the following documents:

a) Fourth Generation United States Mission Control Center Data Structures

b) Cospas-Sarsat Mission Control Centres Standard Interface Description, C/S A.002

c) International Aeronautical and Maritime Search and Rescue Manual and the corresponding National SAR Supplement

2 Summary of Messages

2.1 Overview and Methodology

There is a substantial amount of information available from the USMCC and its associated LUTs for each beacon alert. Only a subset of the data available at LUTs is passed to the USMCC, and only a subset of that information is passed to the RCCs. The data available at the MCC includes, but is not limited to the following:

- time of closest approach;
- orbit of satellite;
- satellite identifier;
- frequency of transmitter;
- number of points;
- duration of Doppler curve;
- probability of the "A" solution being correct;
- error ellipse;
- confidence factor;
- cross-track angle; and
- data residuals.

Some of this information is not meaningful to the RCC controller; some information is not reliable; therefore a limited data set was selected to be transmitted to RCCs.

Two key issues were addressed in developing the alert messages:

1) what information is required by the RCCs; and
2) how the information should be presented.

It was determined that the following data is needed for each emergency beacon signal:

Alert Data

- **WHAT** kind of alert message the USMCC is transmitting;
- **WHEN** the beacon signal transmitted the signal;
- from **WHERE** the beacon transmitted the signal; and if possible
- **WHO** transmitted the beacon signal.

Supporting Data

X **WHO** else received or is receiving alerts for this beacon;
X **WHEN** the beacon signal was previously detected;

X **WHEN** the beacon should be detected again.

2.1.1 Alert Messages

Alert messages are structured to present appropriate data in a logical, consistent format. Figure 2.1 describes the structure of the alert messages. Sample alert messages are given in Chapter 3.

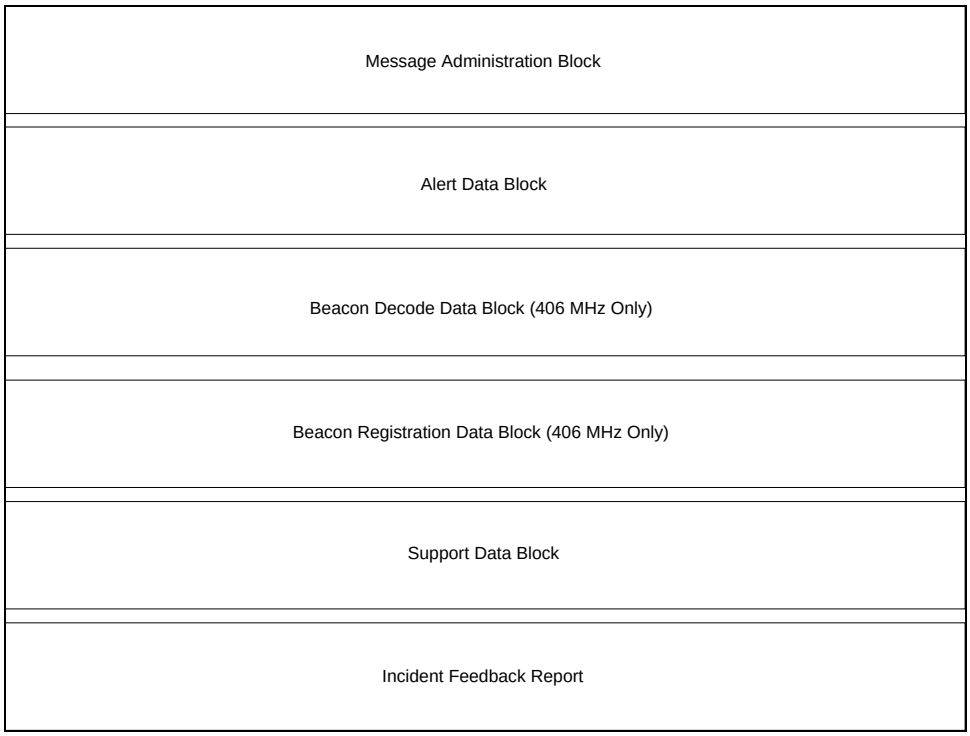

Figure 2.1: Alert Message Structure

The message administration block contains the current and original message numbers to the RCC, the source of the alert, the time the message was transmitted, the Subject Indicator Type (SIT), the destination RCC, and the message title.

The alert data block contains the time and position of the alert(s).

The beacon decode data block contains the translation of the encoded digital data transmitted by a 406 MHz beacon.

The beacon registration data block contains information extracted from NOAA's 406 MHz Beacon Registration Database.

The support data block contains information on MCC processing time for the beacon alert, a list of other recipients for this alert, previous detections of a beacon and predicted future detections for the beacon.

The incident feedback report block requests information from the RCCs on the outcome of the beacon transmission or signal source. As of 23 March 2009, this block is not provided to any RCC, because the RCCs provide incident feedback information directly to the Incident History Database (IHDB) on the web.

2.1.2 Support Messages

Support messages are treated differently from alert messages and do not follow the same structure. These messages are designed to relay specific information requested by the RCCs. Sample support messages are presented in chapter 4.

2.2 Alert Messages

Table 2.2 provides a brief description of all the alert messages generated by the USMCC.

SIT	Message Name/Comments
151	121/243 FIRST ALERT This message is transmitted by the USMCC whenever a 121.5 and/or 243 MHz signal is first detected by a polar orbiting satellite and the positions determined by the LUT do not match any active sites. A new active site is created and both the real and the image ("A" and "B") positions are provided in the message.
156	121/243 NOTIFICATION OF AMBIGUITY RESOLUTION This message is transmitted whenever the real side of a 121.5 and/or 243 MHz signal is determined (the second polar orbiting satellite pass over the signal).
157	121/243 COMPOSITE POSITION UPDATE This message is transmitted for the third and all subsequent satellite passes for an active 121.5/243 MHz signal or site.

SIT	Message Name/Comments
158	121/243 MISSED PASS/SITE STATUS REPORT This message is transmitted when a satellite pass site fails to detect a 121.5/243 MHz signal which was detected on a previous pass. A special version is transmitted when a site closes due to age out or to operator action. Generally a 121.5/243 MHz sites closes when three consecutive missed passes occurs or when 6 hours passes without a signal being detected.
160	406 BEACON UNLOCATED FIRST ALERT This message is transmitted when a 406 MHz beacon (with registration information or craft identification) is first detected but no encoded or Doppler position information is available. These messages are often sent when a beacon signal is first detected by a Geostationary satellite.
161	406 BEACON LOCATED FIRST ALERT (AMBIGUITY UNRESOLVED) This message is transmitted when a 406 MHz beacon is first detected with encoded or Doppler position information available.
162	406 BEACON LOCATED FIRST ALERT UPDATE (AMBIGUITY UNRESOLVED) This message is transmitted when a “406 BEACON LOCATED FIRST ALERT” (SIT 161) has been previously transmitted and additional information regarding the A/B probability is available.
163	406 BEACON POSITION CONFLICT ALERT (AMBIGUITY UNRESOLVED) This message is transmitted when Doppler or encoded positions for a 406 MHz beacon differ by more than 50 kilometers from the position reported in a previous alert message (before ambiguity has been resolved).

SIT	Message Name/Comments
164	406 BEACON NOTIFICATION OF AMBIGUITY RESOLUTION This message is transmitted when the ambiguity of a previous 406 MHz beacon alert (either the A/B ambiguity or an encoded position ambiguity) is resolved.
165	406 BEACON COMPOSITE POSITION UPDATE This message is transmitted when the new Doppler or encoded position is within 50 kilometers of the previous resolved position. 406 BEACON COMPOSITE UPDATE WITH POSITION CONFLICT This message is transmitted when Doppler or encoded positions differ by more than 50 kilometers from the previous resolved position.
166	406 BEACON MISSED PASS/SITE STATUS REPORT This message is transmitted when a satellite pass (at least 10 degrees above the horizon to the “A”, “B”, resolved or encoded position) fails to detect the 406 MHz beacon. A special version is transmitted when a site closes due to age out or to operator action. Generally a 406 MHz site closes when three consecutive missed passes occur or 18 hours pass without a signal being detected.
167	406 BEACON DETECTION UPDATE This message is transmitted when a 406 MHz unlocated alert is received after a missed pass is reported and causes the missed pass counter to be reset. This message is also sent if an unlocated alert is received and no messages have been transmitted to the RCC for an alert site for at least two hours.
168	USA 406 BEACON DETECTED OUTSIDE US AOR This message is transmitted when a United States county coded 406 MHz beacon is detected outside the US Area Of Responsibility (AOR).

SIT	Message Name/Comments
169	406 BEACON ENCODED POSITION UPDATE This message is generated when the position encoded in the 406 MHz beacon message changes by more than 3 kilometers and less than 50 kilometers.

Table 2.2: Description of Alert Messages (cont)

2.2.1 406 MHz Ship Security Alert System (SSAS) Alert Messages

The USMCC distributes alert messages for 406 MHz Ship Security Alert System (SSAS) beacons in accordance with Cospas-Sarsat specifications. See C/S documents T.001 (406 MHz Beacon Specification), A.001 (Data Distribution Plan) and A.002 (Standard Interface Description) for more information.

For SSAS alerts where the message destination (or Competent Authority) is in the U.S. Service Area, but is not the U.S. Search and Rescue Area, the message is sent in SPOC format, as defined in C/S A.002.

For SSAS alerts where the message destination is the U.S. Search and Rescue Area, the message is sent in the same format as other 406 MHz RCC messages, except that a "SHIP SECURITY ALERT" header line is provided. This header line immediately precedes the standard message title, as shown in the sample SSAS alert message in section 3.5.1. SSAS alerts are not sent to all RCCs, but only to the designated Competent Authority.

2.2.2 406 MHz Alert Messages for Unknown Beacon Types

When the 406 MHz beacon message contains invalid or inconsistent information, then the beacon type is unknown. When the 406 MHz beacon type is unknown, the USMCC distributes alert messages based only on the Doppler location, in accordance with Cospas-Sarsat data distribution procedures (document C/S A.001). For alerts with an unknown beacon type and a Doppler location in the U.S. Search and Rescue area, the message is sent in the same format as other 406 MHz RCC messages, except that a "UNKNOWN BEACON TYPE" header line is provided. This header line immediately precedes the standard message title, as shown in the sample alert message in section 3.6.1. Alert messages are only provided for unknown beacon types when there is Doppler location.

2.3 Support Messages

Table 2.3 provides a brief description of the support messages generated by the USMCC.

SIT	Message Name/Comments
950	NARRATIVE MESSAGE This message is used to transmit narrative text messages to the RCCs
951	ALERT SITE QUERY This message is used to provide alert information on active and closed sites processed by the USMCC. There are three levels of queries available to the RCCs, ranging from general information about what alerts were detected in a given area over a given time or for a particular beacon, to comprehensive data files with all data related to a particular beacon or Site.
952	406 BEACON REGISTRATION This message is used to transmit 406 MHz beacon registration information to RCCs
953	BEACON-LUT MUTUAL VISIBILITY This message is used to transmit a list of satellite passes that have mutual visibility with a United States LUT and a specified location.

Table 2.3: Description of Support Messages

3 Explanation of Alert Messages

The following sections contain an explanation and samples of the different alert messages. A conscious effort was made to keep the general format of all messages consistent. Therefore, "N/A" is used to indicate that data is not available or not applicable for a particular alert or support message. Definitions for the different elements, or fields, in alert messages are provided in Appendix 1.

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3.1 121.5/243 First Alert (SIT 151)

This message is transmitted by the USMCC whenever a 121.5 and/or 243 MHz signal is first detected by a polar orbiting satellite and the positions determined by the LUT do not match any active sites. A new active site is created and both the real and the image ("A" and "B") positions are provided in the message.

Message Administration Block

The message administration block does not contain any labels. This block provides the current and original message numbers for this message to the RCC. Current message numbers are sequential to enable message tracking by RCCs. The original message number will be listed if the current message is a retransmission of a previous message.

Other information provided in this block includes the reporting MCC of the alert (the code for the USMCC is 3660), the time the message was transmitted, the Subject Indicator Type (SIT), the destination RCC, and the message title. The Subject Indicator Type is a numerical identifier for a specific type of message, thus the 121.5/243 First Alert can also be referred to as a SIT 151.

Alert Data Block

This block provides detection information for the alert(s). The SITE ID is an identifier assigned by the USMCC to show a collection of data associated with a beacon or signal source. The prefix of "1", "2", or "3" indicates the frequency of the first alert (1=121.5, 2=243.0, 3=dual frequency). The prefix will not change even if the site frequency becomes dual. The "A" and "B" indicate the two "sides" of the site. The 5 digit number is a sequential number assigned by the USMCC to reference a specific and unique site.

The LATITUDE and LONGITUDE are provided in degrees, minutes, tenths of minutes, and hemisphere. The DETECT TIME is given as a date-time group in Zulu time (UTC).

The FREQuency is provided to the nearest kilohertz. The "D" identifies the solution source as dual frequency (i.e., 121.5 and 243 MHz). Most 121.5 MHz ELTs and EPIRBs in the United States transmit on both the 121.5 and the 243 MHz frequencies. Due to limitations of COSPAS satellites and the USMCC match/merge process, it is possible for a site to be reported on only one frequency initially and to be reported on the other frequency later.

The SWeeP indicates that an audible signal was detected (this audible signal is used for homing). A "YES" in this column indicates that audio modulation is probably present (i.e., the whoop, whoop, whoop sound that can be detected by tuning a radio or Radio Direction Finder (RDF) to 121.5 MHz). An "UNK" indicates that it is not known if sweep is present.

The SATellite which detected the signal is identified by three characters. The first character identifies the type of satellite ("C" for Cospas, "S" for Sarsat, "G" for GOES, "M" for MSG and an "I" for Insat), the remaining two digits are the satellite number.

The SOURCE is listed as the Local User Terminal (LUT) or MCC which provided the data.

The SRR is the search and rescue region in which the alert falls is listed. If the alert falls in a BUFFER zone, the adjacent SRR is listed as well. If an alert falls in the BUFFER zone for three or more SRRs, it will be properly routed, but the messages received at each RCC will list only one BUFFER zone.

XThe "D" indicator in the FREQ column is a good sign that this is a real beacon.
XAn "UNK" in the SWP column implies that not enough information exists to determine whether or not there is audio modulation.
XThe "YES" indicator in the SWP column is a good indicator that this is a real beacon.

Support Data Block

This block provides supporting information about this alert message and any other alert messages sent concerning this beacon. The USMCC PROCESSING TIME is given as a date-time group in Zulu time (UTC).

Destinations that THIS particular ALERT MESSAGE IS BEING SENT TO are identified. ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO contains information on all destinations that previously received alert messages for this beacon or signal source. This field is set to "N/A" for first alerts, since many solutions with different SRRs may be included on the message. PREVIOUS PASS INFORMATION contains a list of the last four satellite passes detected for this beacon or signal (this field is left blank for first alerts).

The NEXT TIME SIGNAL SHOULD BE DETECTED indicates the next two satellite passes that should detect the signal source or SITE ID/SOL again. For 121.5/243 MHz alerts, next pass prediction is based on mutual visibility between the signal source, a polar orbiting satellite, and a United States LUT which is scheduled to track that particular satellite pass. The DETECT TIME is the date-time that the next scheduled pass is to pass over the signal. The SAT is the next satellite to pass over the beacon or signal source and SOURCE is the LUT scheduled to track that pass.

The VISIBILITY of a satellite varies based on the elevation of the satellite above the horizon (relative to both the signal source and the LUT antenna) and the geographic and man-made features in the vicinity of the LUT antenna. In general, satellite passes with elevation angles between 5 and 90 degrees above the horizon provide usable data.

Satellite passes where the elevation angle is at least 10 degrees are termed “HIGH” passes. A high satellite pass over a reported signal source which fails to detect the signal is referred to as a “MISSED PASS” and a message will be sent to the RCC advising them of the missed pass. Satellite passes where the elevation angle is between 5 and 10 degrees are termed “LOW” passes.

Satellite passes where the elevation angle is less than 5 degrees are not listed as predicted passes. If such a pass were to detect the signal, the information would be passed to the RCC.

> *A low satellite pass over a reported signal source which fails to detect the signal is* ***not*** *a missed pass, thus a missed pass report will not be sent to the RCC.*

An example of a 121/243 first alert is provided on the next page.

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/62141 00000/3660/98 015 0030
/151/366F

********** 121/243 FIRST ALERT **********

********** DETECTION TIME AND POSITIONS **********

SITE ID	LATITUDE	LONGITUDE	DETECT TIME	FREQ	SWP	SAT	SOURCE	SRR	/BUFFER
3A12345	29 23.4N	123 34.5W	15 0015 JAN	D121.457	YES	S3	TX1	PACAR	
3B12345	28 24.4N	089 34.5W	15 0015 JAN	D121.457	YES	S3	TX1	AFRCC	/CGD08
2A12347	39 12.4N	123 34.5W	15 0016 JAN	243.001	UNK	S3	TX1	PACAR	
2B12347	38 11.4N	089 34.5W	15 0016 JAN	243.001	UNK	S3	TX1	AFRCC	

********** SUPPORTING INFORMATION **********

USMCC PROCESSING TIME: 15 0030 JAN

THIS ALERT MESSAGE IS BEING SENT TO: N/A

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO: N/A

PREVIOUS PASS INFORMATION: NONE

NEXT TIME SIGNAL SHOULD BE DETECTED:

SITE ID	SOL	DETECT TIME	SAT	SOURCE	VISIBILITY
3A12345	A	15 0045 JAN	S3	SSE	HIGH
3A12345	A	15 0239 JAN	C4	OSE	LOW (WILL NOT COUNT AS MISSED PASS)
3B12345	B	15 0200 JAN	S3	SSE	LOW (WILL NOT COUNT AS MISSED PASS)
3B12345	B	15 0240 JAN	C6	TX1	HIGH
2A12347	A	15 0200 JAN	S3	SSE	HIGH
2A12347	A	15 0239 JAN	C4	OSE	HIGH
2B12347	B	15 0200 JAN	S3	SSE	LOW (WILL NOT COUNT AS MISSED PASS)
2B12347	B	15 0240 JAN	C6	TX1	LOW (WILL NOT COUNT AS MISSED PASS)

QQQQ
/LASSIT
/ENDMSG

3.2 121/243 Notification of Ambiguity Resolution (SIT 156)

This message is transmitted when the real side of a 121.5 and/or 243 MHz signal is determined by the second polar orbiting satellite pass over the signal. Only the valid position ("A" or "B") within a given SRR (or buffer zone) is included in the message. This message will go to the recipients of the corresponding first alert.

Message Administration Block

The message administration block does not contain any labels. This block provides the current and original message numbers for this message to the RCC. Current message numbers are sequential to enable message tracking by RCCs. The original message number will be listed if the current message is a retransmission of a previous message.

Other information provided in this block includes the reporting MCC of the alert (the code for the USMCC is 3660), the time the message was transmitted, the Subject Indicator Type (SIT), the destination RCC, and the message title. The Subject Indicator Type is a numerical identifier for a specific type of message, thus 121.5/243 ambiguity resolution can also be referred to as a SIT 156.

Alert Data Block

This block provides the composite position of the signal source and the information which led to ambiguity resolution. The SITE ID is an identifier assigned by the USMCC to show a collection of data associated with a beacon or signal source. The prefix of "1", "2", or "3" indicates the frequency of the first alert (1=121.5, 2=243.0, 3=dual frequency). The prefix will not change even if the site frequency becomes dual. The "A" and "B" indicate the two "sides" of the site. The 5 digit number is a sequential number assigned by the USMCC to reference a specific and unique site.

The IMAGE SITE identifies the site ID of the image position.

The LATITUDE and LONGITUDE of the composite position are provided in degrees, minutes, tenths of minutes, and hemisphere. The DURATION is the length of time the signal has been considered active. For consistency, the time period is measured referencing the time at which a satellite was closest to a signal source, or Time of Closest Approach (TCA). It is the amount of time between the first satellite pass TCA and the most recent or last satellite pass TCA. The number of satellite PASSES that detected the signal are also provided

The SRR is the search and rescue region in which the alert falls. If the alert falls in a BUFFER zone, the adjacent SRR is listed as well. If an alert falls in the BUFFER zone for three or more SRRs, it will be properly routed, but the messages received at each RCC will list only one BUFFER zone.

The following data is provided for each of the pass or elemental data that was used to compute the merged or composite position:

The SITE ID, LATITUDE and LONGITUDE. The DETECT TIME is given as a date-time group in Zulu time (UTC).

The FREQuency is provided to the nearest kilohertz. The "D" identifies the solution source as dual frequency (i.e., 121.5 and 243 MHz). Most 121.5 MHz ELTs and EPIRBs in the United States transmit on both the 121.5 and the 243 MHz frequencies. Due to limitations of COSPAS satellites and the USMCC match/merge process, it is possible for a site to be reported on only one frequency initially and to be reported on the other frequency later.

The SWeeP indicates that an audible signal was detected (this audible signal is used for homing). A "YES" in this column indicates that audio modulation is probably present (i.e., the whoop, whoop, whoop sound that can be detected by tuning a radio or Radio Direction Finder (RDF) to 121.5 MHz). An "UNK" indicates that it is not known if sweep is present.

The SATellite which detected the signal is identified by three characters. The first character identifies the type of satellite ("C" for Cospas, "S" for Sarsat, "G" for GOES, and an "I" for Insat), the remaining two digits are the satellite number.

The SOURCE is listed as the Local User Terminal (LUT) or MCC which provided the data.

XPlot the elemental solutions to determine drift
XThe composite position, or the position to where ambiguity has been resolved, is calculated by the USMCC and may not reflect current or actual position of the signal
XBeacon or craft movement which is easily detected by plotting the elemental solutions may not be evident by plotting the composite positions only

XThe "D" indicator in the FREQ column is a good sign that this is a real beacon.
XAn "UNK" in the SWP column implies that not enough information exists to determine whether or not there is audio modulation.
XThe "YES" indicator in the SWP column is a good indicator that this is a real beacon.

Support Data Block

This block provides supporting information about this alert message and any other alert messages sent concerning this beacon. The USMCC PROCESSING TIME is given as a date-time group in Zulu time (UTC).

Destinations that THIS particular ALERT MESSAGE IS BEING SENT TO are identified. ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO contains information on all destinations that previously received alert messages for this beacon or signal source (this field is left blank for first alerts). PREVIOUS PASS INFORMATION contains a list of the last four satellite passes (information includes SITE ID, LATITUDE, LONGITUDE, DETECT TIME, FREQuency, SWeeP, SATellite and SOURCE) detected for this beacon or signal.

The NEXT TIME SIGNAL SHOULD BE DETECTED indicates the next two satellite passes that should detect the signal source or SITE ID/SOL again. For 121.5/243 MHz alerts, next pass prediction is based on mutual visibility between the signal source, a polar orbiting satellite, and a United States LUT which is scheduled to track that particular satellite pass. The DETECT TIME is the date-time that the next scheduled pass is to pass over the signal. The SAT is the next satellite to pass over the beacon or signal source and SOURCE is the LUT scheduled to track that pass.

The VISIBILITY of a satellite varies based on the elevation of the satellite above the horizon (relative to both the signal source and the LUT antenna) and the geographic and man-made features in the vicinity of the LUT antenna. In general, satellite passes with elevation angles between 5 and 90 degrees above the horizon provide usable data.

Satellite passes where the elevation angle is at least 10 degrees are termed “HIGH” passes. A high satellite pass over a reported signal source which fails to detect the signal is referred to as a “MISSED PASS” and a message will be sent to the RCC advising them of the missed pass.
Satellite passes where the elevation angle is between 5 and 10 degrees are termed “LOW” passes.
Satellite passes where the elevation angle is less than 5 degrees are not listed as predicted passes. If such a pass were to detect the signal, the information would be passed to the RCC.

A low satellite pass over a reported signal source which fails to detect the signal is ***not*** *a missed pass, thus a missed pass report will not be sent to the RCC.*

Incident Feedback Report

Each 121.5/243 MHz composite alert site requires documentation in order to identify opportunities to improve beacon design, regulation, information processing and alert response. The United States Air Force, United States Coast Guard, and NOAA have worked together to establish the minimum information required to improve the system; the incident feedback report requests this information from the RCCs which were involved in response to a given beacon alert. The guidelines contained at Appendix A will facilitate completing the Incident Feedback Report.

The SAR Mission Coordinator (SMC) is usually best qualified to complete the Incident Feedback Report. Sometimes an RCC will receive alert messages for several sites which actually relate to the same signal source. When this occurs, the RCC need only complete ONE Incident Feedback Report and list all associated Site IDs.

An example of a 121/243 MHz ambiguity notification message is provided on the next page.

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/62141 00000/3660/98 015 0100
/156/366F

***************  121/243 NOTIFICATION OF AMBIGUITY RESOLUTION ***************

SITE ID: 3A12345                                          IMAGE SITE: 3B12345

***************  AMBIGUITY RESOLVED TO THE FOLLOWING POSITION ***************

LATITUDE LONGITUDE  DURATION   PASSES  SRR   /BUFFER
29 23.4N 123 34.5W  001.5 HRS  002     PACAR

***********  AMBIGUITY RESOLVED FROM THE FOLLOWING NEW INFORMATION **********

SITE ID  LATITUDE LONGITUDE DETECT TIME  FREQ    SWP SAT SOURCE
3A12345  29 23.1N 123 34.9W 15 0045 JAN D121.457 YES S3  SSE

************************  SUPPORTING INFORMATION  ****************************

USMCC PROCESSING TIME: 15 0058 JAN

THIS ALERT MESSAGE IS BEING SENT TO:
        PACAR

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:
        PACAR, CGD08, AFRCC

PREVIOUS PASS INFORMATION:

SITE ID  LATITUDE LONGITUDE DETECT TIME  FREQ    SWP SAT SOURCE
3A12345  29 23.4N 123 34.5W 15 0015 JAN D121.457 YES S3  MULT

NEXT TIME SIGNAL SHOULD BE DETECTED:

SITE ID SOL  DETECT TIME  SAT  SOURCE  VISIBILITY
3A12345 C    15 0220 JAN  S3   SSE     HIGH
3A12345 C    15 0239 JAN  C4   OSE     LOW (WILL NOT COUNT AS MISSED PASS)
```

*** INCIDENT FEEDBACK REPORT FOR 121/243 ALERT, FAX BACK TO 301-457-5406 ***

SITE ID: 3A12345 COMPOSITE TCA: 15 0045 JAN
CALCULATED LAT: 29 23.4N LONG: 123 34.5W

OTHER SITE IDS FOR SAME INCIDENT:

CEASED / DISTRESS / NON-DISTRESS

INCIDENT/MISSION/ CASE NUMBER:

INCIDENT/MISSION/ CASE START TIME:

COSPAS-SARSAT ONLY NOTIFICATION? YES / NO

COSPAS-SARSAT FIRST NOTIFICATION? YES / NO

COSPAS-SARSAT USED FOR LOCATION ONLY? YES / NO

STATE OR GENERAL LOCATION:

TIME RESCUE FORCES ARRIVED (GMT):
____/____/____/____:____ (YY/MM/DD/HH:MM)

RESCUED: TOTAL INVOLVED:

ACTUAL LOCATION LAT: LONG:

HOW DETERMINED:
 LORAN / OMEGA / VOR / VOR-DME / TACAN / SATNAV / GPS / CHART / OTHER

HOW ACTIVATED:
 AUTOMATIC / MANUAL / USER-ERROR / BEACON-PROBLEM / BRACKET FAILURE

WHY ACTIVATED: DISTRESS / TEST / OTHER

VESSEL/AIRCRAFT TYPE AND NAME:

HOURS OF RESOURCE ALLOCATED:
BOAT____ CUTTER____ HELO____ FIXED WING____ CAP____ OTHER____

TIME ALERT DETERMINED TO BE A FALSE ALARM OR RESOURCE LAUNCHED (GMT):
____/____/____/____:____ (YY/MM/DD/HH:MM)

BEACON MANUFACTURER:

BEACON MODEL:

BEACON TYPE: ELT / EPIRB / PLB / OTHER

REMARKS:
QQQQ
/LASSIT
/ENDMSG

3.3 **121/243 Composite Position Update** (SIT 157)

This alert is transmitted for the third and subsequent satellite passes which detect an active 121.5 or 243 MHz signal or site.

Message Administration Block

The message administration block does not contain any labels. This block provides the current and original message numbers for this message to the RCC. Current message numbers are sequential to enable message tracking by RCCs. The original message number will be listed if the current message is a retransmission of a previous message.

Other information provided in this block includes the reporting MCC of the alert (the code for the USMCC is 3660), the time the message was transmitted, the Subject Indicator Type (SIT), the destination RCC, and the message title. The Subject Indicator Type is a numerical identifier for a specific type of message, thus 121.5/243 composite position update messages can also be referred to as a SIT 157.

Alert Data Block

This block provides the updated position information for the composite alert site and the alert data which led to the position update. The SITE ID is an identifier assigned by the USMCC to show a collection of data associated with a beacon or signal source. The prefix of “1", “2", or “3" indicates the frequency of the first alert (1=121.5, 2=243.0, 3=dual frequency). The prefix will not change even if the site frequency becomes dual. The “A” and “B” indicate the two “sides” of the site. The 5 digit number is a sequential number assigned by the USMCC to reference a specific and unique site.

The LATITUDE and LONGITUDE of the updated position are provided in degrees, minutes, tenths of minutes, and hemisphere. The DURATION is the length of time the signal has been considered active. For consistency, the time period is measured referencing the time at which a satellite was closest to a signal source, or Time of Closest Approach (TCA). It is the amount of time between the first satellite pass TCA and the most recent or last satellite pass TCA. The number of satellite PASSES that detected the signal are also provided

The SRR is the search and rescue region in which the alert falls. If the alert falls in a BUFFER zone, the adjacent SRR is listed as well. If an alert falls in the BUFFER zone for three or more SRRs, it will be properly routed, but the messages received at each RCC will list only one BUFFER zone.

The following is provided for each of the pass or elemental data that was used to update the merged or composite position:

The SITE ID, LATITUDE and LONGITUDE. The DETECT TIME is given as a date-time group in Zulu time (UTC).

The FREQuency is provided to the nearest kilohertz. The "D" identifies the solution source as dual frequency (i.e., 121.5 and 243 MHz). Most 121.5 MHz ELTs and EPIRBs in the United States transmit on both the 121.5 and the 243 MHz frequencies. Due to limitations of COSPAS satellites and the USMCC match/merge process, it is possible for a site to be reported on only one frequency initially and to be reported on the other frequency later.

The SWeeP indicates that an audible signal was detected (this audible signal is used for homing). A "YES" in this column indicates that audio modulation is probably present (i.e., the whoop, whoop, whoop sound that can be detected by tuning a radio or Radio Direction Finder (RDF) to 121.5 MHz). An "UNK" indicates that it is not known if sweep is present.

The SATellite which detected the signal is identified by three characters. The first character identifies the type of satellite ("C" for Cospas, "S" for Sarsat, "G" for GOES, and an "I" for Insat), the remaining two digits are the satellite number.

The SOURCE is listed as the Local User Terminal (LUT) or MCC which provided the data.

XPlot the elemental solutions to determine drift
XThe composite position, or the position to where ambiguity has been resolved, is calculated by the USMCC and may not reflect current or actual position of the signal
XBeacon or craft movement which is easily detected by plotting the elemental solutions may not be evident by plotting the composite positions only

XThe "D" indicator in the FREQ column is a good sign that this is a real beacon.
XAn "UNK" in the SWP column implies that not enough information exists to determine whether or not there is audio modulation.
XThe "YES" indicator in the SWP column is a good indicator that this is a real beacon.

Support Data Block

This block provides supporting information about this alert message and any other alert messages sent concerning this beacon. The USMCC PROCESSING TIME is given as a date-time group in Zulu time (UTC).

Destinations that THIS particular ALERT MESSAGE IS BEING SENT TO are identified. Field "ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO" contains information on all destinations that previously received alert messages for this beacon or signal source (this field is left blank for first alerts). PREVIOUS PASS INFORMATION contains a list of the last four satellite passes (information includes SITE ID, LATITUDE, LONGITUDE, DETECT TIME, FREQuency, SWeeP, SATellite and SOURCE) detected for this beacon or signal.

The NEXT TIME SIGNAL SHOULD BE DETECTED indicates the next two satellite passes that should detect the signal source or SITE ID/SOL again. For 121.5/243 MHz alerts, next pass prediction is based on mutual visibility between the signal source, a polar orbiting satellite, and a United States LUT which is scheduled to track that particular satellite pass. The DETECT TIME is the date-time that the next scheduled pass is to pass over the signal. The SAT is the next satellite to pass over the beacon or signal source and SOURCE is the LUT scheduled to track that pass.

The VISIBILITY of a satellite varies based on the elevation of the satellite above the horizon (relative to both the signal source and the LUT antenna) and the geographic and man-made features in the vicinity of the LUT antenna. In general, satellite passes with elevation angles between 5 and 90 degrees above the horizon provide usable data.

Satellite passes where the elevation angle is at least 10 degrees are termed "HIGH" passes. A high satellite pass over a reported signal source which fails to detect the signal is referred to as a "MISSED PASS" and a message will be sent to the RCC advising them of the missed pass.
Satellite passes where the elevation angle is between 5 and 10 degrees are termed "LOW" passes.
Satellite passes where the elevation angle is less than 5 degrees are not listed as predicted passes. If such a pass were to detect the signal, the information would be passed to the RCC.

A low satellite pass over a reported signal source which fails to detect the signal is ***not*** *a missed pass, thus a missed pass report will not be sent to the RCC.*

An example of a 121/243 position update message is provided on the next page.

```
/62141 00000/3660/98 015 0200
/157/366F

********************  121/243 COMPOSITE POSITION UPDATE **********************

SITE ID: 3A12345

********************  POSITION UPDATED TO THE FOLLOWING **********************

LATITUDE LONGITUDE  DURATION   PASSES  SRR   /BUFFER
29 23.4N 123 34.5W  001.6 HRS  003     PACAR

****************  POSITION UPDATED FROM THE FOLLOWING ALERT  ****************

SITE ID  LATITUDE LONGITUDE DETECT TIME  FREQ    SWP SAT SOURCE
3A12345  29 23.4N 123 34.5W 15 0150 JAN D121.457 YES C6  CMCC

************************  SUPPORTING INFORMATION  ***************************

USMCC PROCESSING TIME: 15 0159 JAN

THIS ALERT MESSAGE IS BEING SENT TO:
        PACAR

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:
        PACAR, AFRCC, CGD08

PREVIOUS PASS INFORMATION:

SITE ID  LATITUDE LONGITUDE DETECT TIME  FREQ    SWP SAT SOURCE
3A12345  29 23.4N 123 34.5W 15 0015 JAN D121.457 YES S3  MULT
3A12345  29 23.4N 123 34.5W 15 0045 JAN D121.457 YES S3  SSE

NEXT TIME SIGNAL SHOULD BE DETECTED:

SITE ID SOL  DETECT TIME  SAT  SOURCE  VISIBILITY
3A12345 C    15 0200 JAN  S3   SSE     HIGH
3A12345 C    15 0239 JAN  C4   OSE     HIGH

QQQQ
/LASSIT
/ENDMSG
```

3.4 121/243 Missed Pass/Site Status Report (SIT 158)

This message is transmitted after a satellite pass fails to detect a signal for a composite position. This message will provide the status of all sites which should have been detected by a given satellite pass. A special version of this message is sent when a site closes due to time or operator action.

Message Administration Block

The message administration block does not contain any labels. This block provides the current and original message numbers for this message to the RCC. Current message numbers are sequential to enable message tracking by RCCs. The original message number will be listed if the current message is a retransmission of a previous message.

Other information provided in this block includes the reporting MCC of the alert (the code for the USMCC is 3660), the time the message was transmitted, the Subject Indicator Type (SIT), the destination RCC, and the message title. The Subject Indicator Type is a numerical identifier for a specific type of message, thus 121/243 missed pass/site status reports can also be referred to as a SIT 158.

Alert Data Block

The current active sites section provides a listing of current composite alert sites which should have been detected (but were not) during the satellite pass. The SITE ID is an identifier assigned by the USMCC to show a collection of data associated with a beacon or signal source. The prefix of “1", “2", or “3" indicates the frequency of the first alert (1=121.5, 2=243.0, 3=dual frequency). The prefix will not change even if the site frequency becomes dual. The “A” and “B” indicate the two “sides” of the site. The 5 digit number is a sequential number assigned by the USMCC to reference a specific and unique site.

The LATITUDE and LONGITUDE of the updated position are provided in degrees, minutes, tenths of minutes, and hemisphere. The DURATION is the length of time the signal has been considered active. For consistency, the time period is measured referencing the time at which a satellite was closest to a signal source, or Time of Closest Approach (TCA). It is the amount of time between the first satellite pass TCA and the most recent or last satellite pass TCA. The number of satellite PASSES that detected the signal is also provided

The SRR is the search and rescue region in which the alert falls. If the alert falls in a BUFFER zone, the adjacent SRR is listed as well. If an alert falls in the BUFFER zone for three or more SRRs, it will be properly routed, but the messages received at each RCC will list only one BUFFER zone.

The Missed Pass (MP) field contains number of missed passes since the last detection. A site will close when there have been three consecutive missed passes on the composite position. (For 121/243 MHz sites without a composite position, the site will close if there have been three consecutive missed passes on both the “A” and the “B” positions.) The CLOSED field indicates the current status of the site, and if the site is closed, the reason why it was closed. This field has four values ("NO", "YES - MP", “YES-OPERATOR", and “YES - TIME"), where “YES - MP” indicates that the site closed due to missed passes, “YES-OPERATOR" indicates that the site was forced closed by the MCC operator, and "YES - TIME" indicates that the 121/243 MHz site closed because 6 hours passed without a detection. Closing an MCC site is not intended to give the RCC direction on prosecuting a SAR case but is primarily an MCC administrative function.

The DETECT TIME, given in Zulu time (UTC), is the date and time that the satellite should have detected the signal. The SATellite is the satellite that should have detected the signal at the detect time. Lastly the SOURCE is the LUT that should have detected the signal. These three fields are set to “NA” if a site closed due to time or operator action.

*A low satellite pass over a reported signal source which fails to detect the signal is **not** a missed pass, thus a missed pass report will not be sent to the RCC. Missed passes are only generated for United States LUTs*

Support Data Block

This block provides supporting information about this alert message and any other alert messages sent concerning this beacon. The USMCC PROCESSING TIME is given as a date-time group in Zulu time (UTC).

Destinations that THIS particular ALERT MESSAGE IS BEING SENT TO are identified. ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO contains information on all destinations that previously received alert messages for this beacon or signal source (this is not applicable for this message). PREVIOUS PASS INFORMATION contains a list of the last four satellite passes (information includes SITE ID, LATITUDE, LONGITUDE, DETECT TIME, FREQuency, SweeP, SATellite and SOURCE) detected for this beacon or signal (this is not applicable for this message).

The NEXT TIME SIGNAL SHOULD BE DETECTED indicates the next two satellite passes that should detect the signal source or SITE ID/SOL again. For 121.5/243 MHz alerts, next pass prediction is based on mutual visibility between the signal source, a polar orbiting satellite, and a United States LUT which is scheduled to track that particular satellite pass. The DETECT TIME is the date-time that the next scheduled pass is to pass over the signal. The SAT is the next satellite to pass over the beacon or signal source and SOURCE is the LUT scheduled to track that pass.

The VISIBILITY of a satellite varies based on the elevation of the satellite above the horizon (relative to both the signal source and the LUT antenna) and to geographic and man-made obstructions in the vicinity of the LUT antenna. In general, satellite passes with elevation angles between 5 and 90 degrees above the horizon provide usable data.

Satellite passes where the elevation angle is at least 10 degrees are termed “HIGH” passes. A high satellite pass over a reported signal source which fails to detect the signal is referred to as a “MISSED PASS” and a message will be sent to the RCC advising them of the missed pass.
Satellite passes where the elevation angle is between 5 and 10 degrees are termed “LOW” passes.
Satellite passes where the elevation angle is less than 5 degrees are not listed as predicted passes. If such a pass were to detect the signal, the information would be passed to the RCC.

> *A low satellite pass over a reported signal source which fails to detect the signal is **not** a missed pass, thus a missed pass report will not be sent to the RCC.*

An example of a 121/243 missed pass message is provided on the next page.

- Remainder of Page Blank -

```
/62141 00000/3660/98 015 0300
/158/366F

******************  121/243 MISSED PASS/SITE STATUS REPORT ******************

**************************  CURRENT ACTIVE SITES  **************************

SITE ID  LATITUDE  LONGITUDE  DURATION  PASSES  SRR   /BUFFER   MP CLOSED
3A12345  29 45.5N  123 56.9W  001.5 HRS 003     PACAR           1  NO
2B12347  39 23.5N  124 34.5W  001.0 HRS 001     PACAR           1  NO

********  ABOVE SITE(S) WERE NOT DETECTED DURING THE FOLLOWING PASS  ********

DETECT TIME  SAT SOURCE
15 0250 JAN  S3  CA1

************************  SUPPORTING INFORMATION  ***************************

USMCC PROCESSING TIME: 15 0256 JAN

THIS ALERT MESSAGE IS BEING SENT TO:
        PACAR

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:
        PACAR, AFRCC, CGD08

PREVIOUS PASS INFORMATION:

SITE ID  LATITUDE LONGITUDE DETECT TIME  FREQ    SWP SAT SOURCE
3A12345  29 45.4N 123 55.5W 15 0200 JAN D121.457 YES S3  TX2
3A12345  29 45.9N 123 59.5W 15 0124 JAN D121.457 YES S6  CA1
2B12347  39 23.4N 123 34.5W 15 0159 JAN 243.011  YES S3  CA2

NEXT TIME SIGNAL SHOULD BE DETECTED:

SITE ID SOL  DETECT TIME  SAT  SOURCE  VISIBILITY
1A12345 C    15 0200 JAN  S3   SSE     HIGH
1A12345 C    15 0239 JAN  C4   OSE     LOW (WILL NOT COUNT AS MISSED PASS)

QQQQ
/LASSIT
/ENDMSG
```

```
/62142 00000/3660/01 015 0300
/158/366F

******************  121/243 MISSED PASS/SITE STATUS REPORT ******************

*************************  CURRENT ACTIVE SITES  *************************

SITE ID  LATITUDE  LONGITUDE  DURATION  PASSES  SRR   /BUFFER   MP CLOSED
3A12345  29 45.5N  123 56.9W  001.5 HRS 003     PACAR           1  YES - MP

********  ABOVE SITE(S) WERE NOT DETECTED DURING THE FOLLOWING PASS  ********

DETECT TIME  SAT SOURCE
NA           NA  NA

************************  SUPPORTING INFORMATION  ***************************

USMCC PROCESSING TIME: 15 0256 JAN

THIS ALERT MESSAGE IS BEING SENT TO:
        PACAR

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:
        PACAR, AFRCC, CGD08

PREVIOUS PASS INFORMATION:

SITE ID  LATITUDE LONGITUDE DETECT TIME  FREQ    SWP SAT SOURCE
3A12345  29 45.4N 123 55.5W 15 0200 JAN D121.457 YES S3  TX2
3A12345  29 45.9N 123 59.5W 15 0124 JAN D121.457 YES S6  CA1

NEXT TIME SIGNAL SHOULD BE DETECTED:

SITE ID SOL  DETECT TIME  SAT  SOURCE  VISIBILITY
1A12345 C    15 0200 JAN  S3   SSE     HIGH
1A12345 C    15 0239 JAN  C4   OSE     LOW (WILL NOT COUNT AS MISSED PASS)

QQQQ
/LASSIT
/ENDMSG
```

3.5 **406 Beacon Unlocated First Alert** (SIT 160)

This message is transmitted when a 406 MHz beacon is first detected but no encoded or Doppler position information is available. The beacon identifier and other available information about the beacon is included in the message.

Message Administration Block

The message administration block does not contain any labels. This block provides the current and original message numbers for this message to the RCC. Current message numbers are sequential to enable message tracking by RCCs. The original message number will be listed if the current message is a retransmission of a previous message.

Other information provided in this block includes the reporting MCC of the alert (the code for the USMCC is 3660), the time the message was transmitted, the Subject Indicator Type (SIT), the destination RCC, and the message title. The Subject Indicator Type is a numerical identifier for a specific type of message, thus a 406 beacon unlocated first alert can also be referred to as a SIT 160. The message title for a SSAS alert includes an additional header, as noted in section 3.5.1.

Alert Data Block

This block starts by providing the BEACON ID which identifies the 15 character hexa-decimal identifier and the five digit USMCC SITE ID for the 406 MHz beacon.

For location protocol beacons (i.e., beacons with a GPS/navigation input) the BEACON ID represents the digital message with the location bits defaulted. This ensures that everyone involved refers to the same beacon even if the position is changing.

The DETECT TIME is given as a date-time group in Zulu time (UTC). The SATellite which detected the beacon is identified by three characters. The first character identifies the type of satellite (“C” for Cospas, “S” for Sarsat, “G” for GOES, and an “I” for Insat), the remaining two digits are the satellite number. The SOURCE is listed as the Local User Terminal (LUT) or MCC which provided the data.

The SRR is the search and rescue region in which the alert falls is listed. If the alert falls in a BUFFER zone, the adjacent SRR is listed as well. If an alert falls in the BUFFER zone for three or more SRRs, it will be properly routed, but the messages received at each RCC will list only one BUFFER zone. Since this is an unlocated alert, the SRR listed is that of either (1) the home port of the craft to which the beacon is registered or (2) the owner’s home address.

Since this is an unlocated alert, PROBABILITY, SOLUTION, LATITUDE and LONGITUDE are not available.

Beacon Decode Data Block

The information in this block is automatically decoded from the transmitted 406 MHz digital message. The information can be derived from or linked to the bits contained in the 406 MHz digital message.

If the 406 MHz beacon id is determined to be unreliable, then no associated data fields (such as COUNTRY) are shown. In this case, the Beacon Decode Data Block contains the following line:

NO DATA PROVIDED BECAUSE THE BEACON CODING IS NOT RELIABLE

The COUNTRY field identifies the country, nationality, state or territory associated with the beacon. It identifies the country that maintains registration information for the beacon. The MID CODE is the three digit code assigned by the International Telecommunications Union, this code corresponds to the COUNTRY.

The MANUFACTURER, and MODEL number of the beacon is provided for beacons that are coded with a United States serialized protocol. The MANUFACTURER field contains the Cospas-Sarsat Type Approval number (in the format "CSTA# <number>") when this information is encoded the beacon id. Cospas-Sarsat issues a Type Approval number after a particular beacon manufacturer and model of a 406 MHz beacon successfully completes the Type Approval testing. The SERIAL NUMber is the unique serial number of the beacon. The 24 BIT ADDRess is the 24-bit aircraft address. The CRAFT ID contains the encoded radio call sign, MMSI number, aircraft tail number, registration marking, or aircraft operator designator. HOMING identifies the frequency and type of homer on the beacon. BEACON TYPE identifies the type (i.e., EPIRB, ELT or PLB) of the beacon, as well as the coding scheme. The PROGRAM contains the name of a special program associated with the beacon id. *[The PROGRAM is also used to identify an authorized test associated with a beacon id. Not implemented as of 1/5/2005.]* PROGRAM BLOCK REGISTRATION ID contains the 15 hexadecimal id that is linked to Beacon Registrations Data for a special program.

The following applies only to the U.S. Naval Submarine program, and is only available to U.S. RCCs and other authorized agencies. The SEPIRB ID is the serial number for this beacon. The POSITION RESOLUTION gives the degree of resolution of encoded position, as "REFINED", "COARSE" or "NONE". MINUTES FOR GPS LOC provides the number of minutes elapsed between beacon activation and the acquisition of encoded location from a GPS satellite. HOURS ACTIVE contains the number of hours since beacon activation.

The following applies only to the U.S. CSEL program, and is only available to U.S. RCCs and

other authorized agencies. The HHR ID is the serial number for this beacon. The POSITION RESOLUTION gives the degree of resolution of encoded position, as “REFINED”, “GROSS” or “NONE”. ZEROIZE STATUS indicates whether associated devices have been cleared. TEST MODE indicated whether the beacon was activated in test mode or normal operating mode.

[Note: The Beacon Decode Data Block should be identical for the description of each message or only referenced once.]

Beacon Registration Data Block

This block provides the data stored in the USMCC Registration Database. The remarks section will contain any special notes as a result of feedback from the owner, United States Coast Guard, United States Air Force, or other responding agency, which amplifies the registration information. Refer to Appendix 1 for further information.

The format for registration data varies based on the type of beacon registered. EPIRB, ELT, and PLB registration forms all have different formats. The EPIRB format is listed in this example. Appendix 2 contains sample formats for EPIRBs, ELTs, and PLBs.

Support Data Block

This block provides supporting information about this alert message and any other alert messages sent concerning this beacon. The USMCC PROCESSING TIME is given as a date-time group in Zulu time (UTC).

Destinations that THIS particular ALERT MESSAGE IS BEING SENT TO are identified. ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO contains information on all destinations that previously received alert messages for this beacon. As this is a first alert no information is available. PREVIOUS PASS INFORMATION also is not provided as this is a first alert. The NEXT TIME SIGNAL SHOULD BE DETECTED cannot be determined as this is an unlocated alert.

Incident Feedback Report

Each 406 site requires documentation (incident feedback) in order to identify opportunities to improve beacon design, beacon usage, regulation, information processing and alert response. The United States Air Force, United States Coast Guard, and NOAA have worked together to establish the minimum information required to improve the system; the incident feedback report requests this information from the RCCs which were involved in response to a given beacon alert. Appendix A contains guidelines for providing Incident Feedback.

The SAR Mission Coordinator (SMC) is usually best qualified to provide Incident Feedback.

An example of a 406 beacon unlocated first alert *for a non SSAS beacon* is provided on the next page.

- Remainder of Page Blank -

```
/62145 00000/3660/98 046 0104
/160/366M

**********************  406 BEACON UNLOCATED FIRST ALERT
**********************

BEACON ID: ADCD0 16672 C0401      SITE ID: 73324

*****************  DETECTION TIME AND POSITIONS FOR THE BEACON
**************

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE  SRR   /BUFFER
N/A   N/A  N/A                 15 0004 FEB  S3   SSE     CGD07

************ BEACON ID CONTAINS THE FOLLOWING ENCODED INFORMATION  **********

COUNTRY     : USA              CRAFT ID   : WAQ7615
MID CODE    : 366              HOMING     : 121.5 MHZ
MANUFACTURER: LITTON           MODEL      : 948-000001
SERIAL NUM  : 23456            BEACON TYPE: MARITIME

*****************  USMCC REGISTRATION DATABASE INFORMATION  *****************

OWNER: LEONARD SHRIMP PRODUCERS INC
       1058 ISLAND AVENUE             TEL 1: HOME 813-934-4657
       TARPON SPRINGS          FL     TEL 2: WORK 813-934-5678
       34689     USA                  TEL 3: CELL 813-934-1234
                                      TEL 4: WORK 813-934-4444
       EMAIL: LEONARDSHRIMP@AOL.COM

CONTACTS: DAN LEONARD                 ELROY LEONARD
        TEL 1: HOME 813-937-0987      TEL 1: HOME 904-824-0532
        TEL 2: WORK 813-934-3465      TEL 2: CELL 904-829-6554
        TEL 3: CELL 813-934-1111      TEL 3:
        TEL 4:                        TEL 4:

VESSEL NAME: MISS MARIE
TYPE: POWER TRAWLER                   LENGTH OVERALL (FT):    75
COLOR: GRAY                           CAPACITY:   8
RADIO CALL SIGN: WAQ7615              REGISTRATION NO: 636170
RADIO EQP: VHF-FM, INMARSAT           INMARSAT NUMBER:
CELLULAR NUMBER:

NUMBER OF LIFE BOATS:     0           NUMBER OF LIFE RAFTS:     0

HOME PORT PRIMARY SRR: PACAREA        SECONDARY SRR:
HOME PORT: RICK'S MARINA              SHALLOTTE               NC

MANUFACTURER: LITTON                  MODEL NUMBER: 948-01
ACTIVATION TYPE: CAT1 (MANUAL AND AUTOMATIC)

BEACON CONTAINS SVDR:  NO
```

DATE FIRST REGISTERED: 26 JAN 1993 DATE DECAL EXPIRES: 31 DEC 1995
DATE LAST UPDATED: 26 JAN 1993

REMARKS:

SPECIAL STATUS: SPECIAL STATUS DATE:
SPECIAL STATUS INFO:

********** SUPPORTING INFORMATION **********

USMCC PROCESSING TIME: 15 0100 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
CGD07

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO: N/A

PREVIOUS PASS INFORMATION: N/A

NEXT TIME SIGNAL SHOULD BE DETECTED: N/A

***** INCIDENT FEEDBACK REPORT FOR 406 ALERT, FAX BACK TO 301-457-5406 *****

BEACON ID: ADCD0 16672 C0401 DETECT TIME: 15 0045 FEB SITE ID: 73324

CEASED / DISTRESS / NON-DISTRESS

INCIDENT/MISSION/ CASE NUMBER:

INCIDENT/MISSION/ CASE START TIME:

COSPAS-SARSAT ONLY NOTIFICATION? YES / NO

COSPAS-SARSAT FIRST NOTIFICATION? YES / NO

COSPAS-SARSAT USED FOR LOCATION ONLY? YES / NO

STATE OR GENERAL LOCATION:

TIME RESCUE FORCES ARRIVED (GMT):
____/____/____/____:____ (YY/MM/DD/HH:MM)

RESCUED: TOTAL INVOLVED:

ACTUAL LOCATION LAT: LONG:

HOW DETERMINED:
 LORAN / OMEGA / VOR / VOR-DME / TACAN / SATNAV / GPS / CHART / OTHER

HOW ACTIVATED:
 AUTOMATIC / MANUAL / USER-ERROR / BEACON-PROBLEM / BRACKET FAILURE

WHY ACTIVATED: DISTRESS / TEST / OTHER

VESSEL/AIRCRAFT TYPE AND NAME:

HOURS OF RESOURCE ALLOCATED:
BOAT____ CUTTER____ HELO____ FIXED WING____ CAP____ OTHER____

TIME ALERT DETERMINED TO BE A FALSE ALARM OR RESOURCE LAUNCHED (GMT):
____/____/____/____:____ (YY/MM/DD/HH:MM)

GEOSAR DATA USED TO RESOLVE INCIDENT? YES / NO

BEACON MANUFACTURER: LITTON

BEACON MODEL:

BEACON TYPE: MARITIME FLOAT-FREE

WAS 406 BEACON REGISTRATION DATA USED TO RESOLVE INCIDENT: YES / NO

REMARKS:
QQQQ

```
/LASSIT
/ENDMSG
```

- Remainder of Page Blank -

3.5.1 406 Beacon Unlocated First Alert, SSAS beacon (SIT 160)

As noted in section 2.2.1, alerts for SSAS beacons and other beacons have the same format, except that an additional SHIP SECURITY ALERT header line precedes the standard message title. An example of a 406 beacon unlocated first alert *for a SSAS beacon* is provided on the next page.

```
/30155 00000/3660/04 114 1659
/161/366F

!!! SHIP SECURITY ALERT !!!!!!!!!!

***********  406 BEACON LOCATED FIRST ALERT (AMBIGUITY UNRESOLVED)  **********

BEACON ID: ADCD0 22349 00C01      SITE ID: 19622

*****************  DETECTION TIME AND POSITIONS FOR THE BEACON  **************

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE SRR   /BUFFER
51    A    29 04.9N 090 12.1W  25 1109 MAR  S7   LSE    CGD08
49    B    18 31.3N 041 14.0W  25 1109 MAR  S7   LSE    LANTAR

************  BEACON ID CONTAINS THE FOLLOWING ENCODED INFORMATION ***********

COUNTRY     : USA              CRAFT ID   :
MID CODE    : 366              HOMING     : 121.5 MHZ
MANUFACTURER: ACR              MODEL      : RLB 27
SERIAL NUM  : 35026            BEACON TYPE: SHIP SECURITY

*************  USMCC REGISTRATION DATABASE INFORMATION  ************

OWNER: SEABULK OFFSHORE LTD
       146 CALCO BLVD #101            TEL 1: HOME 3182344111
       LAFAYETTE              LA      TEL 2:
       70503      USA                 TEL 3:
       900 SW 5TH PLACE               TEL 4:
       FMAIL: SEABULK.OFFSHORE@aol.Com

CONTACTS: LES MILLS                     MARC EVEN
     TEL 1: HOME 3182344111           TEL 1: HOME 5034522372
     TEL 2: WORK 8135312224           TEL 2:
     TEL 3:                           TEL 3:
     TEL 4:                           TEL 4:

VESSEL NAME: SEABULK LEXINGTON
TYPE: POWER CREWBOAT                  LENGTH OVERALL (FT):   125
COLOR:                                CAPACITY:     0
RADIO CALL SIGN: WCX4244              REGISTRATION NO: 973660
RADIO EQP: VHF-FM,HF,MF               INMARSAT NUMBER:
CELLULAR NUMBER:

NUMBER OF LIFE BOATS:     1           NUMBER OF LIFE RAFTS:     0

HOME PORT PRIMARY SRR: CGD08            SECONDARY SRR:
HOME PORT:                             MIAMI                      FL

MANUFACTURER: ACR                     MODEL NUMBER: RLB 27
ACTIVATION TYPE: CAT1 (MANUAL AND AUTOMATIC)

BEACON CONTAINS SVDR:  YES. RECOVER BEACON IF POSSIBLE

DATE FIRST REGISTERED: 16 APR 1997    DATE DECAL EXPIRES: 09 DEC 2004
DATE LAST UPDATED:  09 DEC 2002

REMARKS:
```

SPECIAL STATUS: SPECIAL STATUS DATE:
SPECIAL STATUS INFO:

********** SUPPORTING INFORMATION **********

USMCC PROCESSING TIME: 25 1113 MAR

THIS ALERT MESSAGE IS BEING SENT TO:
LANTAREA, CGD08

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO: N/A

PREVIOUS PASS INFORMATION: N/A

NEXT TIME SIGNAL SHOULD BE DETECTED:

SOL	DETECT TIME	SAT	SOURCE	VISIBILITY
A	25 1250 MAR	S7	OT1	HIGH
A	25 1258 MAR	S6	TX1	HIGH
B	25 1537 MAR	S4	OT1	LOW (WILL NOT COUNT AS MISSED PASS)
B	25 1727 MAR	S8	FL1	HIGH

QQQQ
/LASSIT
/ENDMSG

3.6 406 Beacon Located First Alert (Ambiguity Unresolved) (SIT 161)

This message is transmitted when encoded or Doppler position information is first available for a 406 MHz beacon. The beacon ID, the two Doppler positions or the encoded position, and any other available information about the beacon is included in the message. Ambiguity has not been resolved because two independent (either from two Doppler solutions or from a Doppler solution and an encoded solution) sources of position information were not available.

Message Administration Block

The message administration block does not contain any labels. This block provides the current and original message numbers for this message to the RCC. Current message numbers are sequential to enable message tracking by RCCs. The original message number will be listed if the current message is a retransmission of a previous message.

Other information provided in this block includes the reporting MCC of the alert (the code for the USMCC is 3660), the time the message was transmitted, the Subject Indicator Type (SIT), the destination RCC, and the message title. The Subject Indicator Type is a numerical identifier for a specific type of message, thus a 406 beacon located first alert can also be referred to as a SIT 161.

Alert Data Block

The format for registration data varies based on the type of beacon registered. EPIRB, ELT, and PLB registration forms each have different formats. The EPIRB format is listed in this example. Appendix 2 contains sample formats for EPIRBs, ELTs, and PLBs.

Support Data Block

This block provides supporting information about this alert message and any other alert messages sent concerning this beacon. The USMCC PROCESSING TIME is given as a date-time group in Zulu time (UTC).

Destinations that THIS particular ALERT MESSAGE IS BEING SENT TO are identified. ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO contains information on all destinations that previously received alert messages for this beacon. PREVIOUS PASS INFORMATION may contain information for an unlocated alert which was previously transmitted.

The NEXT TIME SIGNAL SHOULD BE DETECTED indicates the next two satellite passes that should detect the beacon SOLution. Next pass prediction is based on mutual visibility between the beacon, a polar orbiting satellite, and a United States LUT which is scheduled to

track that particular satellite pass. The DETECT TIME is the date-time that the next scheduled pass is to pass over the beacon. The SAT is the next satellite to pass over the beacon, and SOURCE is the LUT scheduled to track that pass.

The VISIBILITY of a satellite varies based on the elevation of the satellite above the horizon (relative to both the signal source and the LUT antenna) and the geographic and man-made features in the vicinity of the LUT antenna. In general, satellite passes with elevation angles between 5 and 90 degrees above the horizon provide usable data.

Satellite passes where the elevation angle is at least 10 degrees are termed "HIGH" passes. A high satellite pass over a reported signal source which fails to detect the signal is referred to as a "MISSED PASS" and a message will be sent to the RCC advising them of the missed pass. Satellite passes where the elevation angle is between 5 and 10 degrees are termed "LOW" passes. Satellite passes where the elevation angle is less than 5 degrees are not listed as predicted passes. If such a pass were to detect the signal, the information would be passed to the RCC.

A low satellite pass over a reported signal source which fails to detect the signal is ***not*** *a missed pass, thus a missed pass report will not be sent to the RCC.*

Incident Feedback Report

Each 406 site requires documentation in order to identify opportunities to improve beacon design, beacon usage, regulation, information processing and alert response. The United States Air Force, United States Coast Guard, and NOAA have worked together to establish the minimum information required to improve the system; the incident feedback report requests this information from the RCCs which were involved in response to a given beacon alert. The guidelines contained at Appendix A will facilitate completing the Incident Feedback Report.

The SAR Mission Coordinator (SMC) is usually best qualified to complete the Incident Feedback Report.

Two examples of 406 beacon located first alerts are provided, one without encoded location data and one with encoded location data.

```
/62146 00000/3660/98 046 0105
/161/366O

***********  406 BEACON LOCATED FIRST ALERT (AMBIGUITY UNRESOLVED)
**********

BEACON ID: ADCD0 16672 C0401      SITE ID: 73326

*****************  DETECTION TIME AND POSITIONS FOR THE BEACON
**************

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE  SRR   /BUFFER
50    A    28 25.6N 100 12.3W  15 0045 FEB  S3   SSE     CGD08 /AFRCC
50    B    28 35.6N 072 18.3W  15 0045 FEB  S3   SSE     CGD07

************  BEACON ID CONTAINS THE FOLLOWING ENCODED INFORMATION
**********

COUNTRY     : USA              CRAFT ID   : WAQ7615
MID CODE    : 366              HOMING     : 121.5 MHZ
MANUFACTURER: LITTON           MODEL      : 948-000001
SERIAL NUM  : 23456            BEACON TYPE: MARITIME

******************  USMCC REGISTRATION DATABASE INFORMATION
*****************

OWNER: LEONARD SHRIMP PRODUCERS INC
       1058 ISLAND AVENUE             TEL 1: HOME 813-934-4657
       TARPON SPRINGS          FL     TEL 2: WORK 813-934-5678
       34689     USA                  TEL 3:
                                      TEL 4:
       EMAIL:

CONTACTS: DAN LEONARD                 ELROY LEONARD
        TEL 1: HOME 813-937-0987      TEL 1: HOME 904-824-0532
        TEL 2: WORK 813-934-3465      TEL 2: WORK 904-829-6554
        TEL 3: CELL 813-111-2222      TEL 3:
        TEL 4:                        TEL 4:

VESSEL NAME: MISS MARIE
TYPE: POWER TRAWLER                   LENGTH OVERALL (FT):    75
COLOR: GRAY                           CAPACITY:   8
RADIO CALL SIGN: WAQ7615              REGISTRATION NO: 636170
RADIO EQP: VHF-FM, INMARSAT           INMARSAT NUMBER:
CELLULAR NUMBER:

NUMBER OF LIFE BOATS:     0           NUMBER OF LIFE RAFTS:     0

HOME PORT PRIMARY SRR: CGD04            SECONDARY SRR:
HOME PORT: RICK'S MARINA              SHALLOTTE               NC

MANUFACTURER: LITTON                  MODEL NUMBER: 948-01
ACTIVATION TYPE: CAT1 (MANUAL AND AUTOMATIC)
```

BEACON CONTAINS SVDR: NO

DATE FIRST REGISTERED: 26 JAN 1993 DATE DECAL EXPIRES: 31 DEC 1995
DATE LAST UPDATED: 26 JAN 1993

REMARKS:

SPECIAL STATUS: SPECIAL STATUS DATE:
SPECIAL STATUS INFO:

********** SUPPORTING INFORMATION
****

USMCC PROCESSING TIME: 15 0104 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
AFRCC, CGD08, CGD07

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO: N/A

PREVIOUS PASS INFORMATION: N/A

NEXT TIME SIGNAL SHOULD BE DETECTED:

SOL	DETECT TIME	SAT	SOURCE	VISIBILITY
A	15 0200 FEB	S3	SSE	HIGH
A	15 0239 FEB	C4	OSE	LOW (WILL NOT COUNT AS MISSED PASS)
B	15 0200 FEB	S3	SSE	HIGH
B	15 0240 FEB	C6	TX1	HIGH

***** INCIDENT FEEDBACK REPORT FOR 406 ALERT, FAX BACK TO 301-457-5406 *****

BEACON ID: ADCD0 16672 C0401 DETECT TIME: 15 0045 FEB SITE ID: 73324
CALCULATED A LAT: 28 25.6N LONG: 100 12.3W
CALCULATED B LAT: 28 35.6N LONG: 072 18.3W

CEASED / DISTRESS / NON-DISTRESS

INCIDENT/MISSION/ CASE NUMBER:

INCIDENT/MISSION/ CASE START TIME:

COSPAS-SARSAT ONLY NOTIFICATION? YES / NO

COSPAS-SARSAT FIRST NOTIFICATION? YES / NO

COSPAS-SARSAT USED FOR LOCATION ONLY? YES / NO

STATE OR GENERAL LOCATION:

TIME RESCUE FORCES ARRIVED (GMT):
____/____/____/____:____ (YY/MM/DD/HH:MM)

RESCUED: TOTAL INVOLVED:

ACTUAL LOCATION LAT: LONG:

HOW DETERMINED:
 LORAN / OMEGA / VOR / VOR-DME / TACAN / SATNAV / GPS / CHART / OTHER

HOW ACTIVATED:
 AUTOMATIC / MANUAL / USER-ERROR / BEACON-PROBLEM / BRACKET FAILURE

WHY ACTIVATED: DISTRESS / TEST / OTHER

VESSEL/AIRCRAFT TYPE AND NAME:

HOURS OF RESOURCE ALLOCATED:
BOAT____ CUTTER____ HELO____ FIXED WING____ CAP____ OTHER____

TIME ALERT DETERMINED TO BE A FALSE ALARM OR RESOURCE LAUNCHED (GMT):
____/____/____/____:____ (YY/MM/DD/HH:MM)

GEOSAR DATA USED TO RESOLVE INCIDENT? YES / NO

BEACON MANUFACTURER: LITTON

BEACON MODEL:

BEACON TYPE: MARITIME FLOAT-FREE

WAS 406 BEACON REGISTRATION DATA USED TO RESOLVE INCIDENT: YES / NO

REMARKS:

QQQQ
/LASSIT
/ENDMSG

```
/62146 00000/3660/98 046 0105
/161/366O

***********  406 BEACON LOCATED FIRST ALERT (AMBIGUITY UNRESOLVED)
**********

BEACON ID: ADCD0 16672 C0401      SITE ID: 73326

*****************  DETECTION TIME AND POSITIONS FOR THE BEACON
**************

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE  SRR   /BUFFER
N/A   E    28 34.3N 072 12.4W  15 0045 FEB  S3   SSE     CGD07

************  BEACON ID CONTAINS THE FOLLOWING ENCODED INFORMATION
**********

COUNTRY     : USA              CRAFT ID   : WAQ7615
MID CODE    : 366              HOMING     : 121.5 MHZ
MANUFACTURER: LITTON           MODEL      : 948-000001
SERIAL NUM  : 23456            BEACON TYPE: MARITIME

*****************  USMCC REGISTRATION DATABASE INFORMATION  *****************

OWNER: LEONARD SHRIMP PRODUCERS INC
       1058 ISLAND AVENUE             TEL 1: HOME 813-934-4657
       TARPON SPRINGS          FL     TEL 2: WORK 813-934-5678
       34689     USA                  TEL 3: CELL 813-934-1234
                                      TEL 4: WORK 813-934-4444
       EMAIL: LEONARDSHRIMP@AOL.COM

CONTACTS: DAN LEONARD                 ELROY LEONARD
        TEL 1: HOME 813-937-0987      TEL 1: HOME 904-824-0532
        TEL 2: WORK 813-934-3465      TEL 2: CELL 904-829-6554
        TEL 3: CELL 813-934-1111      TEL 3:
        TEL 4:                        TEL 4:

VESSEL NAME: MISS MARIE
TYPE: POWER TRAWLER                   LENGTH OVERALL (FT):    75
COLOR: GRAY                           CAPACITY:   8
RADIO CALL SIGN: WAQ7615              REGISTRATION NO: 636170
RADIO EQP: VHF-FM, INMARSAT           INMARSAT NUMBER:
CELLULAR NUMBER:

NUMBER OF LIFE BOATS:     0           NUMBER OF LIFE RAFTS:     0

HOME PORT PRIMARY SRR: PACAREA        SECONDARY SRR:
HOME PORT: RICK'S MARINA              SHALLOTTE               NC

MANUFACTURER: LITTON                  MODEL NUMBER: 948-01
ACTIVATION TYPE: CAT1 (MANUAL AND AUTOMATIC)

BEACON CONTAINS SVDR:  NO
```

DATE FIRST REGISTERED: 26 JAN 1993 DATE DECAL EXPIRES: 31 DEC 1995
DATE LAST UPDATED: 26 JAN 1993

REMARKS:

SPECIAL STATUS: SPECIAL STATUS DATE:
SPECIAL STATUS INFO:

********** SUPPORTING INFORMATION
****

USMCC PROCESSING TIME: 15 0104 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
AFRCC, CGD08, CGD07

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO: N/A

PREVIOUS PASS INFORMATION: N/A

NEXT TIME SIGNAL SHOULD BE DETECTED:

SOL	DETECT TIME	SAT	SOURCE	VISIBILITY
E	15 0200 FEB	S3	SSE	HIGH
E	15 0239 FEB	C4	OSE	LOW (WILL NOT COUNT AS MISSED PASS)

***** INCIDENT FEEDBACK REPORT FOR 406 ALERT, FAX BACK TO 301-457-5406 *****

BEACON ID: ADCD0 16672 C0401 DETECT TIME: 15 0045 FEB SITE ID: 73324
CALCULATED E LAT: 28 35.3N LONG: 100 12.4W

CEASED / DISTRESS / NON-DISTRESS

INCIDENT/MISSION/ CASE NUMBER:

INCIDENT/MISSION/ CASE START TIME:

COSPAS-SARSAT ONLY NOTIFICATION? YES / NO

COSPAS-SARSAT FIRST NOTIFICATION? YES / NO

COSPAS-SARSAT USED FOR LOCATION ONLY? YES / NO

STATE OR GENERAL LOCATION:

TIME RESCUE FORCES ARRIVED (GMT):
____/____/____/____:____ (YY/MM/DD/HH:MM)

RESCUED: TOTAL INVOLVED:

ACTUAL LOCATION LAT: LONG:

HOW DETERMINED:
 LORAN / OMEGA / VOR / VOR-DME / TACAN / SATNAV / GPS / CHART / OTHER

HOW ACTIVATED:
 AUTOMATIC / MANUAL / USER-ERROR / BEACON-PROBLEM / BRACKET FAILURE

WHY ACTIVATED: DISTRESS / TEST / OTHER

VESSEL/AIRCRAFT TYPE AND NAME:

HOURS OF RESOURCE ALLOCATED:
BOAT____ CUTTER____ HELO____ FIXED WING____ CAP____ OTHER____

TIME ALERT DETERMINED TO BE A FALSE ALARM OR RESOURCE LAUNCHED (GMT):
____/____/____/____:____ (YY/MM/DD/HH:MM)

GEOSAR DATA USED TO RESOLVE INCIDENT? YES / NO

BEACON MANUFACTURER: LITTON

BEACON MODEL:

BEACON TYPE: MARITIME FLOAT-FREE

WAS 406 BEACON REGISTRATION DATA USED TO RESOLVE INCIDENT: YES / NO

REMARKS:

```
QQQQ
/LASSIT
/ENDMSG
```

3.6.1 406 Beacon Located First Alert (Ambiguity Unresolved, Unknown Beacon Types) (SIT 161)

As noted in section 2.2.2, alerts for unknown beacon types and known (non SSAS) beacon types have the same format, except that an additional UNKNOWN BEACON TYPE header line precedes the standard message title. An example of a 406 beacon located first alert *for an unknown beacon type* is provided on the next page.

```
/64125 00000/3660/04 128 1745
/161/366H

!!! UNKNOWN BEACON TYPE !!!!!!!!!!

***********  406 BEACON LOCATED FIRST ALERT (AMBIGUITY UNRESOLVED)
**********

BEACON ID: D4EB2 A9A69 A68B6      SITE ID: 20000

*****************  DETECTION TIME AND POSITIONS FOR THE BEACON
**************

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE SRR   /BUFFER
50    A    10 37.0N 163 24.7E  14 0226 APR  S4   LSE    CGD14
50    B    10 37.0N 163 24.7E  14 0226 APR  S4   LSE    CGD14

************  BEACON ID CONTAINS THE FOLLOWING ENCODED INFORMATION
***********

NO DATA PROVIDED BECAUSE THE BEACON CODING IS NOT RELIABLE

*************  USMCC REGISTRATION DATABASE INFORMATION  ************

REGISTRATION DATA IS NOT AVAILABLE
```

********** SUPPORTING INFORMATION **********

USMCC PROCESSING TIME: 14 0342 APR

THIS ALERT MESSAGE IS BEING SENT TO:
CGD14, PACAREA

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO: N/A

PREVIOUS PASS INFORMATION: N/A

NEXT TIME SIGNAL SHOULD BE DETECTED:

SOL	DETECT TIME	SAT	SOURCE	VISIBILITY
A	14 0734 APR	S7	GU2	HIGH
A	14 0940 APR	S6	GU2	HIGH
B	14 0734 APR	S7	GU2	HIGH
B	14 0940 APR	S6	GU2	HIGH

***** INCIDENT FEEDBACK REPORT FOR 406 ALERT, FAX BACK TO 301-457-5406 *****

BEACON ID: D4EB2 A9A69 A68B6 DETECT TIME: 14 0226 APR SITE ID: 20000
CALCULATED A LAT: 10 37.0N LONG: 163 24.7E
CALCULATED B LAT: 10 37.0N LONG: 163 24.7E
CALCULATED E LAT: NIL LONG: NIL

CEASED / DISTRESS / NON-DISTRESS

INCIDENT/MISSION/ CASE NUMBER:

INCIDENT/MISSION/ CASE START TIME:

COSPAS-SARSAT ONLY NOTIFICATION? YES / NO

COSPAS-SARSAT FIRST NOTIFICATION? YES / NO

COSPAS-SARSAT USED FOR LOCATION ONLY? YES / NO

STATE OR GENERAL LOCATION:

TIME RESCUE FORCES ARRIVED (GMT):
____/____/____/____:____ (YY/MM/DD/HH:MM)

RESCUED: TOTAL INVOLVED:

ACTUAL LOCATION LAT: LONG:

HOW DETERMINED:
 LORAN / OMEGA / VOR / VOR-DME / TACAN / SATNAV / GPS / CHART / OTHER

HOW ACTIVATED:
 AUTOMATIC / MANUAL / USER-ERROR / BEACON-PROBLEM / BRACKET FAILURE

WHY ACTIVATED: DISTRESS / TEST / OTHER

VESSEL/AIRCRAFT TYPE AND NAME:

HOURS OF RESOURCE ALLOCATED:
BOAT____ CUTTER____ HELO____ FIXED WING____ CAP____ OTHER____

TIME ALERT DETERMINED TO BE A FALSE ALARM OR RESOURCE LAUNCHED (GMT):
____/____/____/____:____ (YY/MM/DD/HH:MM)

GEOSAR DATA USED TO RESOLVE INCIDENT? YES / NO

BEACON MANUFACTURER:

BEACON MODEL:

BEACON TYPE: UNKNOWN

WAS 406 BEACON REGISTRATION DATA USED TO RESOLVE INCIDENT: YES / NO

REMARKS:

QQQQ
/LASSIT
/ENDMSG

3.7 406 Beacon Located First Alert Update (Ambiguity Unresolved) (SIT 162)

This message is transmitted whenever a "406 BEACON LOCATED FIRST ALERT" has been previously transmitted and additional information with an improved A/B probability split is received, yet the ambiguity between the A and B positions hasn't been resolved.

This message indicates that the location previously identified as the "B" side (or the side less likely to be the real location), has now been identified to be more likely the "A" side (or the side more likely to be the real location).

Message Administration Block

The message administration block does not contain any labels. This block provides the current and original message numbers for this message to the RCC. Current message numbers are sequential to enable message tracking by RCCs. The original message number will be listed if the current message is a retransmission of a previous message.

Other information provided in this block includes the reporting MCC of the alert (the code for the USMCC is 3660), the time the message was transmitted, the Subject Indicator Type (SIT), the destination RCC, and the message title. The Subject Indicator Type is a numerical identifier for a specific type of message, thus a 406 beacon located first alert update can also be referred to as a SIT 162.

Alert Data Block

This block starts by providing the BEACON ID which identifies the 15 character hexa-decimal identifier and the five digit USMCC SITE ID for the 406 MHz beacon.

For location protocol beacons (i.e., beacons with a GPS/navigation input) the BEACON ID represents the digital message with the location bits defaulted. This ensures that everyone involved refers to the same beacon even if the position is changing.

Doppler solutions with improved A/B probability splits are provided. The PROBability is provided for Doppler solutions only. It is the probability that the corresponding solution is the real solution. Encoded solutions are obtained from a GPS source or other navigation device, not derived from Doppler processing. Therefore, they do not have a corresponding probability. The SOLution identifies whether the corresponding solution is the "A" location (the location more likely to be the real solution) or the "B" location. The LATITUDE and LONGITUDE of the Doppler and/or encoded position(s) are provided in degrees, minutes, tenths of minutes and hemisphere.

The DETECT TIME is given as a date-time group in Zulu time (UTC). The SATellite which detected the beacon is identified by three characters. The first character identifies the type of satellite ("C" for Cospas, "S" for Sarsat, "G" for GOES, "M" for MSG and an "I" for Insat), the remaining two digits are the satellite number. The SOURCE is listed as the Local User Terminal (LUT) or MCC which provided the data.

The SRR is the search and rescue region in which the alert falls is listed. If the alert falls in a BUFFER zone, the adjacent SRR is listed as well. If an alert falls in the BUFFER zone for three or more SRRs, it will be properly routed, but the messages received at each RCC will list only one BUFFER zone.

Beacon Decode Data Block

The information in this block is automatically decoded from the transmitted 406 MHz digital message. The information can be derived from, or linked to the bits contained in the 406 MHz digital message.

The COUNTRY field identifies the country, nationality, state or territory associated with the beacon. It identifies the country that maintains registration information for the beacon. The MID CODE is the three digit code assigned by the International Telecommunications Union, this code corresponds to the COUNTRY.

The MANUFACTURER, and MODEL number of the beacon is provided for beacons that are coded with a United States serialized protocol. The SERIAL NUMber is the unique serial number of the beacon. The 24 BIT ADDRess is the 24-bit aircraft address. [Note: Decode Data Block should be identical for the description of each message or only referenced once.] The CRAFT ID contains the encoded radio call sign, MMSI number, aircraft tail number, registration marking, or aircraft operator designator. HOMING identifies the frequency and type of homer on the beacon. BEACON TYPE identifies the type (i.e., EPIRB, ELT or PLB) of the beacon, as well as the coding scheme.

Beacon Registration Data Block

This block provides the data stored in the USMCC Registration Database. All information available in the database is automatically provided here. The remarks section will contain any special notes as a result of feedback from the owner, United States Coast Guard, United States Air Force, or other responding agency, which amplifies the registration information. Refer to Appendix 1 for further information.

The format for registration data varies based on the type of beacon registered. EPIRB, ELT, and PLB registration forms all have different formats. The EPIRB format is listed in this example. Appendix 2 contains sample formats for EPIRBs, ELTs, and PLBs.

Support Data Block

This block provides supporting information about this alert message and any other alert messages sent concerning this beacon. The USMCC PROCESSING TIME is given as a date-time group in Zulu time (UTC).

Destinations that THIS particular ALERT MESSAGE IS BEING SENT TO are identified. ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO contains information on all destinations that previously received alert messages for this beacon. PREVIOUS PASS INFORMATION may contain information for an unlocated alert which was previously transmitted.

Note to whom beacon alert messages have previously been sent. They may have already done some investigative work on the beacon, so you may be able to obtain additional information from them

The LATITUDE, LONGITUDE, DETECT TIME, and SouRCE fields for a given previous alert may change from message to message. This is due to the fact that additional information for a specific satellite pass may come in from other sources even after you receive a message from the USMCC. Most often, you will receive a message as soon as the first piece of data comes in from a US LUT or Foreign MCC. As other data from the same satellite pass comes in, the file is updated but no new messages are sent as long as the information is essentially the same. The most common change you will observe will be when the SouRCE of the data changes from a single source to MULTIple sources - this will usually result in a slight change in the position and DETECT TIME.

The NEXT TIME SIGNAL SHOULD BE DETECTED indicates the next two satellite passes that should detect the beacon SOLution. Next pass prediction is based on mutual visibility between the beacon, a polar orbiting satellite, and a United States LUT which is scheduled to track that particular satellite pass. The DETECT TIME is the date-time that the next scheduled pass is to pass over the beacon. The SAT is the next satellite to pass over the beacon, and SOURCE is the LUT scheduled to track that pass.

The VISIBILITY of a satellite varies based on the elevation of the satellite above the horizon (relative to both the signal source and the LUT antenna) and the geographic and man-made features in the vicinity of the LUT antenna. In general, satellite passes with elevation angles between 5 and 90 degrees above the horizon provide usable data.

Satellite passes where the elevation angle is at least 10 degrees are termed “HIGH” passes. A high satellite pass over a reported signal source which fails to detect the signal is referred to as a “MISSED PASS” and a message will be sent to the RCC advising them of the missed pass.

Satellite passes where the elevation angle is between 5 and 10 degrees are termed “LOW” passes.
Satellite passes where the elevation angle is less than 5 degrees are not listed as predicted passes. If such a pass were to detect the signal, the information would be passed to the RCC.

> *A low satellite pass over a reported signal source which fails to detect the signal is **not** a missed pass, thus a missed pass report will not be sent to the RCC.*

Incident Feedback Report

Each 406 site requires documentation in order to identify opportunities to improve beacon design, beacon usage, regulation, information processing and alert response. The United States Air Force, United States Coast Guard, and NOAA have worked together to establish the minimum information required to improve the system; the incident feedback report requests this information from the RCCs which were involved in response to a given beacon alert. The guidelines contained at Appendix A will facilitate completing the Incident Feedback Report.

> *The SAR Mission Coordinator (SMC) is usually best qualified to complete the Incident Feedback Report.*

An example of a 406 beacon located first alert is provided.

- Remainder of Page Blank -

```
/62146 00000/3660/98 046 0105
/162/366O

*******  406 BEACON LOCATED FIRST ALERT UPDATE (AMBIGUITY UNRESOLVED)
*******

BEACON ID: ADCD0 16672 C0401      SITE ID: 73326

****************  DETECTION TIME AND POSITIONS FOR THE BEACON
***************

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE  SRR   /BUFFER
90    A    28 25.6N 100 12.3W  15 0045 FEB  S3   SSE     CGD08 /AFRCC
10    B    28 35.6N 072 18.3W  15 0045 FEB  S3   SSE     CGD07

************  BEACON ID CONTAINS THE FOLLOWING ENCODED INFORMATION
**********

COUNTRY     : USA              CRAFT ID   : WAQ7615
MID CODE    : 366              HOMING     : 121.5 MHZ
MANUFACTURER: LITTON           MODEL      : 948-000001
SERIAL NUM  : 23456            BEACON TYPE: MARITIME

****************** USMCC REGISTRATION DATABASE INFORMATION  *****************

REGISTRATION DATA IS NOT AVAILABLE
```

********** SUPPORTING INFORMATION **********

USMCC PROCESSING TIME: 15 0104 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
AFRCC, CGD08, CGD07

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:
AFRCC, CGD08, CGD07

PREVIOUS PASS INFORMATION:

PROB	SOL	LATITUDE	LONGITUDE	DETECT TIME	SAT	SOURCE	SRR	/BUFFER
50	A	28 25.6N	100 12.3W	15 0045 FEB	S3	SSE	CGD08	/AFRCC
50	B	28 35.6N	072 18.3W	15 0045 FEB	S3	SSE	CGD07	

NEXT TIME SIGNAL SHOULD BE DETECTED:

SOL	DETECT TIME	SAT	SOURCE	VISIBILITY
A	15 0200 FEB	S3	SSE	HIGH
A	15 0239 FEB	C4	OSE	HIGH
B	15 0200 FEB	S3	SSE	HIGH
B	15 0240 FEB	C6	TX1	HIGH

QQQQ
/LASSIT
/ENDMSG

3.8 406 Beacon Position Conflict Alert (Ambiguity Unresolved) (SIT 163)

This message is transmitted whenever Doppler or encoded positions differ by more than 50 kilometers from a position reported in a previous alert message [or within this alert message] prior to ambiguity resolution. This is an indication that one or more of the positions is inaccurate.

Message Administration Block

The message administration block does not contain any labels. This block provides the current and original message numbers for this message to the RCC. Current message numbers are sequential to enable message tracking by RCCs. The original message number will be listed if the current message is a retransmission of a previous message.

Other information provided in this block includes the reporting MCC of the alert (the code for the USMCC is 3660), the time the message was transmitted, the Subject Indicator Type (SIT), the destination RCC, and the message title. The Subject Indicator Type is a numerical identifier for a specific type of message, thus a 406 beacon position conflict alert can also be referred to as a SIT 163.

Alert Data Block

This block starts by providing the BEACON ID which identifies the 15 character hexa-decimal identifier and the five digit USMCC SITE ID for the 406 MHz beacon.

For location protocol beacons (i.e., beacons with a GPS/navigation input) the BEACON ID represents the digital message with the location bits defaulted. This ensures that everyone involved refers to the same beacon even if the position is changing.

The position(s) that differs from one(s) provided in a previously sent alert message is (are) provided. The PROBability is provided for Doppler solutions only. It is the probability that the corresponding solution is the real solution. Encoded solutions are obtained from a GPS source or other navigation device, not derived from Doppler processing. Therefore, they do not have a corresponding probability. The SOLution identifies whether the corresponding solution is the "A" location (the location more likely to be the real solution) or the "B" location. An "E" identifies the solution as an encoded solution. The LATITUDE and LONGITUDE of the Doppler and/or encoded position(s) are provided in degrees, minutes, tenths of minutes and hemisphere.

The DETECT TIME is given as a date-time group in Zulu time (UTC). The SATellite which detected the beacon is identified by three characters. The first character identifies the type of

satellite (“C” for Cospas, “S” for Sarsat, “G” for GOES, and an “I” for Insat), the remaining two digits are the satellite number. The SOURCE is listed as the Local User Terminal (LUT) or MCC which provided the data.

The SRR is the search and rescue region in which the alert falls is listed. If the alert falls in a BUFFER zone, the adjacent SRR is listed as well. If an alert falls in the BUFFER zone for three or more SRRs, it will be properly routed, but the messages received at each RCC will list only one BUFFER zone.

Beacon Decode Data Block

The information in this block is automatically decoded from the transmitted 406 MHz digital message. The information can be derived from, or linked to the bits contained in the 406 MHz digital message.

The COUNTRY field identifies the country, nationality, state or territory associated with the beacon. It identifies the country that maintains registration information for the beacon. The MID CODE is the three digit code assigned by the International Telecommunication Union and corresponds to the COUNTRY.

The MANUFACTURER, and MODEL number of the beacon is provided for beacons that are coded with a United States serialized protocol. The SERIAL NUMber is the unique serial number of the beacon. The CRAFT ID contains the encoded radio call sign, MMSI number, aircraft tail number, registration marking, 24-bit aircraft address, or aircraft operator designator. HOMING identifies the frequency and type of homer on the beacon. BEACON TYPE identifies the type (i.e., EPIRB, ELT or PLB) of the beacon, as well as the coding scheme.

Beacon Registration Data Block

This block provides the data stored in the USMCC Registration Database. All information available in the database is automatically provided here. The remarks section will contain any special notes as a result of feedback from the owner, United States Coast Guard, United States Air Force, or other responding agency, which amplifies the registration information. Refer to Appendix 1 for further information.

The format for registration data varies based on the type of beacon registered. EPIRB, ELT, and PLB registration forms all have different formats. The EPIRB format is listed in this example. Appendix 2 contains sample formats for EPIRBs, ELTs, and PLBs.

Support Data Block

This block provides supporting information about this alert message and any other alert

messages sent concerning this beacon. The USMCC PROCESSING TIME is given as a date-time group in Zulu time (UTC).

Destinations that THIS particular ALERT MESSAGE IS BEING SENT TO are identified. ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO contains information on all destinations that previously received alert messages for this beacon. PREVIOUS PASS INFORMATION may contain information for an unlocated alert which was previously transmitted.

Note to whom beacon alert messages have previously been sent. They may have already done some investigative work on the beacon, so you may be able to obtain additional information from them

The LATITUDE, LONGITUDE, DETECT TIME, and SouRCE fields for a given previous alert may change from message to message. This is due to the fact that additional information for a specific satellite pass may come in from other sources even after you receive a message from the USMCC. Most often, you will receive a message as soon as the first piece of data comes in from a US LUT or Foreign MCC. As other data from the same satellite pass comes in, the file is updated but no new messages are sent as long as the information is essentially the same. The most common change you will observe will be when the SouRCE of the data changes from a single source to MULTIple sources - this will usually result in a slight change in the position and DETECT TIME.

Note, that although the following labels are provided on the alert message, the information is not applicable for position conflict messages.

The NEXT TIME SIGNAL SHOULD BE DETECTED indicates the next two satellite passes that should detect the beacon SOLution. Next pass prediction is based on mutual visibility between the beacon, a polar orbiting satellite, and a United States LUT which is scheduled to track that particular satellite pass. The DETECT TIME is the date-time that the next scheduled pass is to pass over the beacon. The SAT is the next satellite to pass over the beacon, and SOURCE is the LUT scheduled to track that pass.

The VISIBILITY of a satellite varies based on the elevation of the satellite above the horizon (relative to both the signal source and the LUT antenna) and the geographic and man-made features in the vicinity of the LUT antenna. In general, satellite passes with elevation angles between 5 and 90 degrees above the horizon provide usable data.

Satellite passes where the elevation angle is at least 10 degrees are termed “HIGH” passes. A high satellite pass over a reported signal source which fails to detect the signal is referred to as a “MISSED PASS” and a message will be sent to the RCC advising them of the missed pass. Satellite passes where the elevation angle is between 5 and 10 degrees are termed “LOW”

passes.
Satellite passes where the elevation angle is less than 5 degrees are not listed as predicted passes. If such a pass were to detect the signal, the information would be passed to the RCC.

A low satellite pass over a reported signal source which fails to detect the signal is ***not*** *a missed pass, thus a missed pass report will not be sent to the RCC.*

Incident Feedback Report

Each 406 site requires documentation in order to identify opportunities to improve beacon design, beacon usage, regulation, information processing and alert response. The United States Air Force, United States Coast Guard, and NOAA have worked together to establish the minimum information required to improve the system; the incident feedback report requests this information from the RCCs which were involved in response to a given beacon alert. The guidelines contained at Appendix A will facilitate completing the Incident Feedback Report.

The SAR Mission Coordinator (SMC) is usually best qualified to complete the Incident Feedback Report.

Two examples of 406 beacon position conflict alerts are provided.

- Remainder of Page Blank -

```
/62150 00000/3660/98 047 1810
/163/366H

*******  406 BEACON POSITION CONFLICT (AMBIGUITY UNRESOLVED)  *******

BEACON ID: ADCD0 16672 C0401      SITE ID: 71423

****** POSITION DIFFERENCES OF MORE THAN 50 KMS EXIST FOR THIS BEACON
*******

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE  SRR   /BUFFER
90    A    23 25.6N 169 12.3W  16 1759 FEB  S3   CA2     CGD14
10    B    26 35.6N 121 16.9W  16 1759 FEB  S3   CA2     PACAR

or

N/A   E    28 34.5N 072 12.3W  15 0045 FEB  S3   SSE     CGD07

************  BEACON ID CONTAINS THE FOLLOWING ENCODED INFORMATION
**********

COUNTRY     : USA              CRAFT ID   : WAQ7615
MID CODE    : 366              HOMING     : 121.5 MHZ
MANUFACTURER: LITTON           MODEL      : 948-000001
SERIAL NUM  : 234567           BEACON TYPE: MARITIME

****************** USMCC REGISTRATION DATABASE INFORMATION  *****************

REGISTRATION DATA IS NOT AVAILABLE
```

********** SUPPORTING INFORMATION **********

USMCC PROCESSING TIME: 16 1809 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
PACAR, CGD14, AFRCC, CGD13

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:
PACAR, CGD14, AFRCC, CGD13

PREVIOUS PASS INFORMATION:

PROB	SOL	LATITUDE	LONGITUDE	DETECT TIME	SAT	SOURCE	SRR	/BUFFER
50	A	23 23.4N	123 23.3W	16 1700 FEB	S3	TX1	PACAR	
50	B	24 26.3N	098 45.7W	16 1700 FEB	S3	TX1	AFRCC	
80	A	18 57.9N	167 23.6W	16 1734 FEB	C6	HI1	CGD14	
20	B	39 45.9N	134 56.4W	16 1734 FEB	C6	HI1	CGD13	

NEXT TIME SIGNAL SHOULD BE DETECTED: N/A

QQQQ
/LASSIT
/ENDMSG

/62150 00000/3660/98 047 1810
/163/366H

******* 406 BEACON POSITION CONFLICT (AMBIGUITY UNRESOLVED) *******

BEACON ID: ADCD0 16672 C0401 SITE ID: 71423

****** POSITION DIFFERENCES OF MORE THAN 50 KMS EXIST FOR THIS BEACON *******

PROB	SOL	LATITUDE LONGITUDE	DETECT TIME	SAT	SOURCE	SRR /BUFFER
90	A	23 25.6N 169 12.3W	16 1759 FEB	S3	CA2	CGD14
10	B	26 35.6N 121 16.9W	16 1759 FEB	S3	CA2	PACAR
N/A	E	28 34.5N 072 12.3W	15 0045 FEB	S3	SSE	CGD07

********** BEACON ID CONTAINS THE FOLLOWING ENCODED INFORMATION **********

COUNTRY : USA CRAFT ID : WAQ7615
MID CODE : 366 HOMING : 121.5 MHZ
MANUFACTURER: LITTON MODEL : 948-000001
SERIAL NUM : 234567 BEACON TYPE: MARITIME

********** USMCC REGISTRATION DATABASE INFORMATION **********

OWNER: HUYNH ANDY HAI
PO BOX 786 TEL 1: HOME 4097627822
GALVESTON TX TEL 2: WORK 4094576260
77553 USA TEL 3:
TEL 4:
EMAIL:

CONTACTS: CATHY HUYNH CRYSTAL TRUONG
TEL 1: HOME 4097627822 TEL 1: HOME 7132402572
TEL 2: WORK 4092567815 TEL 2: WORK 4097627822
TEL 3: TEL 3:
TEL 4: TEL 4:
TEL 4:

VESSEL NAME: SEA HORSE
TYPE: POWER Fishing LENGTH OVERALL (FT): 82
COLOR: (NO DATA PROVIDED) CAPACITY: 4
RADIO CALL SIGN: REGISTRATION NO: 1050022
RADIO EQP: VHF INMARSAT NUMBER:
CELLULAR NUMBER:

NUMBER OF LIFE BOATS: 0 NUMBER OF LIFE RAFTS: 0

HOME PORT PRIMARY SRR: CGD08 SECONDARY SRR:
HOME PORT: (NO DATA PROVIDED) GALVESTON TX

MANUFACTURER: MPR/ALDEN MODEL NUMBER: 406S1010
ACTIVATION TYPE: CAT1 (MANUAL AND AUTOMATIC)

BEACON CONTAINS SVDR: NO

DATE FIRST REGISTERED: 10 JUN 2004   DATE DECAL EXPIRES: 10 JUN 2006
DATE LAST UPDATED: 10 JUN 2004

REMARKS:

SPECIAL STATUS: SPECIAL STATUS DATE:
SPECIAL STATUS INFO:

********** SUPPORTING INFORMATION **********

USMCC PROCESSING TIME: 16 1809 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
PACAR, CGD14, AFRCC, CGD13

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:
PACAR, CGD14, AFRCC, CGD13

PREVIOUS PASS INFORMATION:

PROB	SOL	LATITUDE	LONGITUDE	DETECT TIME	SAT	SOURCE	SRR	/BUFFER
50	A	23 23.4N	123 23.3W	16 1700 FEB	S3	TX1	PACAR	
50	B	24 26.3N	098 45.7W	16 1700 FEB	S3	TX1	AFRCC	
80	A	18 57.9N	167 23.6W	16 1734 FEB	C6	HI1	CGD14	
20	B	39 45.9N	134 56.4W	16 1734 FEB	C6	HI1	CGD13	

NEXT TIME SIGNAL SHOULD BE DETECTED: N/A

QQQQ
/LASSIT
/ENDMSG

3.9 406 Beacon Notification of Ambiguity Resolution (SIT 164)

This message is transmitted when the ambiguity of a beacon's position is resolved**.** Previous messages may have been sent or ambiguity may be resolved using the Doppler and encode positions in this alert. Only the valid position ("A", "B", or "E") within a given SRR (or buffer zone) is included in the message.

Message Administration Block

The message administration block does not contain any labels. This block provides the current and original message numbers for this message to the RCC. Current message numbers are sequential to enable message tracking by RCCs. The original message number will be listed if the current message is a retransmission of a previous message.

Other information provided in this block includes the reporting MCC of the alert (the code for the USMCC is 3660), the time the message was transmitted, the Subject Indicator Type (SIT), the destination RCC, and the message title. The Subject Indicator Type is a numerical identifier for a specific type of message, thus a 406 beacon notification of ambiguity resolution can also be referred to as a SIT 162.

Alert Data Block

This block starts by providing the BEACON ID which identifies the 15 character hexa-decimal identifier and the five digit USMCC SITE ID for the 406 MHz beacon.

For location protocol beacons (i.e., beacons with a GPS/navigation input) the BEACON ID represents the digital message with the location bits defaulted. This ensures that everyone involved refers to the same beacon even if the position is changing.

This message provides the composite LATITUDE and LONGITUDE position in degrees, minutes, tenths of minutes and hemisphere. The DURATION is the length of time the signal has been considered active. For consistency, the time period is measured referencing the time at which a satellite was closest to a signal source, or Time of Closest Approach (TCA). It is the amount of time between the first satellite pass TCA and the most recent or last satellite pass TCA. The number of satellite PASSES that detected the beacon are also provided.

The SRR is the search and rescue region in which the alert falls is listed. If the alert falls in a BUFFER zone, the adjacent SRR is listed as well. If an alert falls in the BUFFER zone for three or more SRRs, it will be properly routed, but the messages received at each RCC will list only one BUFFER zone.

The SRR of the composite solution is based on the SRR of the first alert associated with the composite and will not change

The following data is provided for the elemental alert which enabled the system to resolve ambiguity:

XPlot the elemental solutions to determine drift
XThe composite position, or the position to where ambiguity has been resolved, is calculated by the USMCC and may not reflect current or actual position of the signal
XBeacon or craft movement which is easily detected by plotting the elemental solutions may not be evident by plotting the composite positions only

The PROBability is provided for Doppler solutions only. It is the probability that the corresponding solution is the real solution. In this case the PROBability is provided for what was determined to be the real solution. Encoded solutions are obtained from a GPS source or other navigation device, not derived from Doppler processing. Therefore, they do not have a corresponding probability.

The SOLution identifies whether the "A" or the "B" was the real solution. An "E" identifies the solution as an encoded solution. The LATITUDE and LONGITUDE of the Doppler and/or encoded position(s) are also provided.

The DETECT TIME is given as a date-time group in Zulu time (UTC). The SATellite which detected the beacon is identified by three characters. The first character identifies the type of satellite ("C" for Cospas, "S" for Sarsat, "G" for GOES, and an "I" for Insat), the remaining two digits are the satellite number. The SOURCE is listed as the Local User Terminal (LUT) or MCC which provided the data.

Beacon Decode Data Block

The information in this block is automatically decoded from the transmitted 406 MHz digital message. The information can be derived from, or linked to the bits contained in the 406 MHz digital message.

The COUNTRY field identifies the country, nationality, state or territory associated with the beacon. It identifies the country that maintains registration information for the beacon. The MID CODE is the three digit code assigned by the International Telecommunications Union, this code corresponds to the COUNTRY.

The MANUFACTURER, and MODEL number of the beacon is provided for beacons that are coded with a United States serialized protocol. The SERIAL NUMber is the unique serial number of the beacon. The CRAFT ID contains the encoded radio call sign, MMSI number, aircraft tail number, registration marking, 24-bit aircraft address, or aircraft operator designator. HOMING identifies the frequency and type of homer on the beacon. BEACON TYPE identifies the type (i.e., EPIRB, ELT or PLB) of the beacon, as well as the coding scheme.

Beacon Registration Data Block

This block provides the data stored in the USMCC Registration Database. All information available in the database is automatically provided here. The remarks section will contain any special notes as a result of feedback from the owner, United States Coast Guard, United States Air Force, or other responding agency, which amplifies the registration information. Refer to Appendix 1 for further information.

The format for registration data varies based on the type of beacon registered. EPIRB, ELT, and PLB registration forms all have different formats. The EPIRB format is listed in this example. Appendix 2 contains sample formats for EPIRBs, ELTs, and PLBs.

Support Data Block

This block provides supporting information about this alert message and any other alert messages sent concerning this beacon. The USMCC PROCESSING TIME is given as a date-time group in Zulu time (UTC).

Destinations that THIS particular ALERT MESSAGE IS BEING SENT TO are identified. ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO specifies all destinations that previously received alert messages for this beacon activation. PREVIOUS PASS INFORMATION may contain information for an unlocated alert which was previously transmitted.

Note to whom beacon alert messages have previously been sent. They may have already done some investigative work on the beacon, so you may be able to obtain additional information from them

The LATITUDE, LONGITUDE, DETECT TIME, and SOURCE fields for a given previous alert may change from message to message. This is due to the fact that additional information for a specific satellite pass may come in from other sources even after you receive a message from the USMCC. Most often, you will receive a message as soon as the first piece of data comes in from a US LUT or Foreign MCC. As other data from the same satellite pass comes in, the file is updated but no new messages are sent as long as the information is essentially the same. The most common change you will observe will be when the SouRCE of the data changes from a single source to MULTIple sources - this will usually result in a slight change in the position and DETECT TIME.

The NEXT TIME SIGNAL SHOULD BE DETECTED indicates the next two satellite passes that should detect the beacon SOLution. Next pass prediction is based on mutual visibility between the beacon, a polar orbiting satellite, and a United States LUT which is scheduled to track that particular satellite pass. The DETECT TIME is the date-time that the next scheduled pass is to pass over the beacon. The SAT is the next satellite to pass over the beacon, and SOURCE is the LUT scheduled to track that pass.

The VISIBILITY of a satellite varies based on the elevation of the satellite above the horizon (relative to both the signal source and the LUT antenna) and the geographic and man-made obstructions in the vicinity of the LUT antenna. In general, satellite passes with elevation angles between 5 and 90 degrees above the horizon provide usable data.

Satellite passes where the elevation angle is at least 10 degrees are termed “HIGH” passes. A high satellite pass over a reported signal source which fails to detect the signal is referred to as a “MISSED PASS” and a message will be sent to the RCC advising them of the missed pass.
Satellite passes where the elevation angle is between 5 and 10 degrees are termed “LOW” passes.
Satellite passes where the elevation angle is less than 5 degrees are not listed as predicted passes. If such a pass were to detect the signal, the information would be passed to the RCC.

> *A low satellite pass over a reported signal source which fails to detect the signal is* ***not*** *a missed pass, thus a missed pass report will not be sent to the RCC.*

An example of a 406 beacon notification of ambiguity resolution is provided on the next page.

```
/61243 00000/3660/98 048 0615
/164/366S

*************** 406 BEACON NOTIFICATION OF AMBIGUITY RESOLUTION
*************

BEACON ID: ADCD1 76322 C0801      SITE ID: 73321

***************  AMBIGUITY RESOLVED TO THE FOLLOWING POSITION
***************

LATITUDE LONGITUDE  DURATION   PASSES  SRR   /BUFFER
38 45.5N 076 56.9W  001.5 HRS  003     AFRCC

***********  AMBIGUITY RESOLVED FROM THE FOLLOWING NEW INFORMATION
**********

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE
N/A   E    38 43.2N 076 52.3W  17 0545 FEB  S3   PR1

************  BEACON ID CONTAINS THE FOLLOWING ENCODED INFORMATION
**********

COUNTRY     : USA              CRAFT ID   : WAQ7615
MID CODE    : 366              HOMING     : 121.5 MHZ
MANUFACTURER: LITTON           MODEL      : 948-000001
SERIAL NUM  : 234567           BEACON TYPE: MARITIME

******************  USMCC REGISTRATION DATABASE INFORMATION
*****************

NO REGISTRATION DATA AVAILABLE
```

```
**********  SUPPORTING INFORMATION
**************************

USMCC PROCESSING TIME: 17 0613 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
        AFRCC, FMCC

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:
        AFRCC, FMCC

PREVIOUS PASS INFORMATION:

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE
50    A    38 42.4N 077 00.3W  17 0430 FEB  S4   SSE

NEXT TIME SIGNAL SHOULD BE DETECTED:

SOL  DETECT TIME  SAT  SOURCE  VISIBILITY
C    17 0713 FEB  S3   SSE     HIGH
C    17 0824 FEB  S3   OSE     HIGH

QQQQ
/LASSIT
/ENDMSG
```

3.10 **406 Beacon Composite Position Update** (SIT 165); or **406 Beacon Composite Update with Position Conflict** (SIT 165)

This message can have one of two headers, depending on whether or not there is a position conflict with the previous resolved position.

Message Administration Block

The message administration block does not contain any labels. This block provides the current and original message numbers for this message to the RCC. Current message numbers are sequential to enable message tracking by RCCs. The original message number will be listed if the current message is a retransmission of a previous message.

Other information provided in this block includes the reporting MCC of the alert (the code for the USMCC is 3660), the time the message was transmitted, the Subject Indicator Type (SIT), the destination RCC, and the message title. The Subject Indicator Type is a numerical identifier for a specific type of message, thus a 406 beacon composite position update or update with position conflict can also be referred to as a SIT 165.

Alert Data Block

This block starts by providing the BEACON ID which identifies the 15 character hexa-decimal identifier and the five digit USMCC SITE ID for the 406 MHz beacon.

For location protocol beacons (i.e., beacons with a GPS/navigation input) the BEACON ID represents the digital message with the location bits defaulted. This ensures that everyone involved refers to the same beacon even if the position is changing.

This message provides the composite LATITUDE and LONGITUDE position in degrees, minutes, tenths of minutes and hemisphere. The DURATION is the length of time the signal has been considered active. For consistency, the time period is measured referencing the time at which a satellite was closest to a signal source, or Time of Closest Approach (TCA). It is the amount of time between the first satellite pass TCA and the most recent or last satellite pass TCA. The number of satellite PASSES that detected the beacon is also provided.

The SRR is the search and rescue region in which the alert falls is listed. If the alert falls in a BUFFER zone, the adjacent SRR is listed as well. If an alert falls in the BUFFER zone for three or more SRRs, it will be properly routed, but the messages received at each RCC will list only one BUFFER zone.

The following data is provided for the elemental alert which updated the composite position:

XPlot the elemental solutions to determine drift
XThe composite position, or the position to where ambiguity has been resolved, is calculated by the USMCC and may not reflect current or actual position of the signal
XBeacon or craft movement which is easily detected by plotting the elemental solutions may not be evident by plotting the composite positions only

The PROBability is provided for Doppler solutions only. It is the probability that the corresponding solution is the real solution. In this case the PROBability is provided for what was determined to be the real solution. Encoded solutions are obtained from a GPS source or other navigation device, not derived from Doppler processing. Therefore, they do not have a corresponding probability.

The SOLution identifies whether the "A" or the "B" was the real solution. An "E" identifies the solution as an encoded solution. The LATITUDE and LONGITUDE of the Doppler and/or encoded position(s) are also provided.

The DETECT TIME is given as a date-time group in Zulu time (UTC). The SATellite which detected the beacon is identified by three characters. The first character identifies the type of satellite ("C" for Cospas, "S" for Sarsat, "G" for GOES, and an "I" for Insat), the remaining two digits are the satellite number. The SOURCE is listed as the Local User Terminal (LUT) or MCC which provided the data.

Beacon Decode Data Block

The information in this block is automatically decoded from the transmitted 406 MHz digital message. The information can be derived from, or linked to the bits contained in the 406 MHz digital message.

The COUNTRY field identifies the country, nationality, state or territory associated with the beacon. It identifies the country that maintains registration information for the beacon. The MID CODE is the three digit code assigned by the International Telecommunications Union, this code corresponds to the COUNTRY.

The MANUFACTURER, and MODEL number of the beacon is provided for beacons that are coded with a United States serialized protocol. The SERIAL NUMber is the unique serial number of the beacon. The CRAFT ID contains the encoded radio call sign, MMSI number, aircraft tail number, registration marking, 24-bit aircraft address, or aircraft operator designator. HOMING identifies the frequency and type of homer on the beacon. BEACON TYPE identifies the type (i.e., EPIRB, ELT or PLB) of the beacon, as well as the coding scheme.

Support Data Block

This block provides supporting information about this alert message and any other alert messages sent concerning this beacon. The USMCC PROCESSING TIME is given as a date-time group in Zulu time (UTC).

Destinations that THIS particular ALERT MESSAGE IS BEING SENT TO are identified. ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO contains information on all destinations that previously received alert messages for this beacon. PREVIOUS PASS INFORMATION may contain information for an unlocated alert which was previously transmitted.

Note to whom beacon alert messages have previously been sent. They may have already done some investigative work on the beacon, so you may be able to obtain additional information from them

The LATITUDE, LONGITUDE, DETECT TIME, and SOURCE fields for a given previous alert may change from message to message. This is due to the fact that additional information for a specific satellite pass may come in from other sources even after you receive a message from the USMCC. Most often, you will receive a message as soon as the first piece of data comes in from a US LUT or Foreign MCC. As other data from the same satellite pass comes in, the file is updated but no new messages are sent as long as the information is essentially the same. The most common change you will observe will be when the SouRCE of the data changes from a single source to MULTIple sources - this will usually result in a slight change in the position and DETECT TIME.

The NEXT TIME SIGNAL SHOULD BE DETECTED indicates the next two satellite passes that should detect the beacon SOLution. Next pass prediction is based on mutual visibility between the beacon, a polar orbiting satellite, and a United States LUT which is scheduled to track that particular satellite pass. The DETECT TIME is the date-time that the next scheduled pass is to pass over the beacon. The SAT is the next satellite to pass over the beacon, and SOURCE is the LUT scheduled to track that pass.

The VISIBILITY of a satellite varies based on the elevation of the satellite above the horizon (relative to both the signal source and the LUT antenna) and the geographic and man-made features in the vicinity of the LUT antenna. In general, satellite passes with elevation angles between 5 and 90 degrees above the horizon provide usable data.

Satellite passes where the elevation angle is at least 10 degrees are termed “HIGH” passes. A high satellite pass over a reported signal source which fails to detect the signal is referred to as a

“MISSED PASS” and a message will be sent to the RCC advising them of the missed pass.
Satellite passes where the elevation angle is between 5 and 10 degrees are termed “LOW” passes.
Satellite passes where the elevation angle is less than 5 degrees are not listed as predicted passes. If such a pass were to detect the signal, the information would be passed to the RCC.

> *A low satellite pass over a reported signal source which fails to detect the signal is **not** a missed pass, thus a missed pass report will not be sent to the RCC.*

An example of a 406 beacon composite update and a 406 beacon composite update with position conflict are provided.

```
/61243 00000/3660/98 048 1214
/165/366A

********************  406 BEACON COMPOSITE POSITION UPDATE
******************

BEACON ID: ADCD0 16672 C0401      SITE ID: 73321

**********************  POSITION UPDATED TO THE FOLLOWING
********************

LATITUDE LONGITUDE  DURATION   PASSES  SRR   /BUFFER
64 12.8N 149 23.0W  014.3 HRS  006     AKRCC

*****************  POSITION UPDATED FROM THE FOLLOWING ALERT
****************

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE
10    B    64 13.6N 149 24.1W  17 1151 FEB  S3   CMCC
N/A   E    64 12.2N 149 23.3W  17 1151 FEB  S3   CMCC

************  BEACON ID CONTAINS THE FOLLOWING ENCODED INFORMATION
**********

COUNTRY     : USA              CRAFT ID   : WAQ7615
MID CODE    : 366              HOMING     : 121.5 MHZ
MANUFACTURER: LITTON           MODEL      : 948-000001
SERIAL NUM  : 234567           BEACON TYPE: MARITIME
```

```
**********  SUPPORTING INFORMATION
**************************

USMCC PROCESSING TIME: 17 1143 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
        AFRCC

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:
        AFRCC, CGD08, CGD07

PREVIOUS PASS INFORMATION:

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE
50    A    64 12.9N 148 23.3W  17 1023 FEB  S3   AK1
90    A    64 11.9N 152 11.9W  17 0400 FEB  S4   CMCC

NEXT TIME SIGNAL SHOULD BE DETECTED:

SOL  DETECT TIME  SAT  SOURCE  VISIBILITY
C    17 1300 FEB  C6   AK1     HIGH
C    17 1539 FEB  S4   AK1     HIGH

QQQQ
/LASSIT
/ENDMSG
```

```
/61243 00000/3660/98 048 1214
/165/366A

************  406 BEACON COMPOSITE UPDATE WITH POSITION CONFLICT
*************

BEACON ID: ADCD0 16672 C0401      SITE ID: 73321

*********************  POSITION UPDATED TO THE FOLLOWING
********************

LATITUDE LONGITUDE  DURATION   PASSES  SRR   /BUFFER
64 12.8N 149 23.0W  014.3 HRS  006     AKRCC

*** COMPOSITE POSITION DIFFERS BY MORE THAN 50 KM FROM THE FOLLOWING ALERT
***

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE
10    B    64 13.6N 149 24.1W  17 1151 FEB  S3   CMCC
N/A   E    64 12.2N 149 23.3W  17 1151 FEB  S3   CMCC

************  BEACON ID CONTAINS THE FOLLOWING ENCODED INFORMATION
***********

COUNTRY     : USA              CRAFT ID   : WAQ7615
MID CODE    : 366              HOMING     : 121.5 MHZ
MANUFACTURER: LITTON           MODEL      : 948-000001
SERIAL NUM  : 234567           BEACON TYPE: MARITIME
```

```
**********  SUPPORTING INFORMATION
**************************

USMCC PROCESSING TIME: 17 1143 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
        AFRCC

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:
        AFRCC, CGD08, CGD07

PREVIOUS PASS INFORMATION:

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE
50    A    64 12.9N 148 23.3W  17 1023 FEB  S3   AK1
90    A    64 11.9N 152 11.9W  17 0400 FEB  S4   CMCC

NEXT TIME SIGNAL SHOULD BE DETECTED:

SOL  DETECT TIME  SAT  SOURCE  VISIBILITY
C    17 1300 FEB  C6   AK1     HIGH
C    17 1539 FEB  S4   AK1     HIGH

QQQQ
/LASSIT
/ENDMSG
```

3.11 406 Beacon Missed Pass/Site Status Report (SIT 166)

This message is transmitted when a satellite pass (at least 5 degrees above the horizon to the "A', "B", composite or encoded position) fails to detect the beacon. This message is also used to indicate when a site closes.

Message Administration Block

The message administration block does not contain any labels. This block provides the current and original message numbers for this message to the RCC. Current message numbers are sequential to enable message tracking by RCCs. The original message number will be listed if the current message is a retransmission of a previous message.

Other information provided in this block includes the reporting MCC of the alert (the code for the USMCC is 3660), the time the message was transmitted, the Subject Indicator Type (SIT), the destination RCC, and the message title. The Subject Indicator Type is a numerical identifier for a specific type of message, thus a 406 beacon missed pass/site status report can also be referred to as a SIT 166.

Alert Data Block

This block starts by providing the BEACON ID which identifies the 15 character hexadecimal identifier and the five digit USMCC SITE ID for the 406 MHz beacon. In addition, the number of missed passes and the status of the site (closed or not) are listed. The method used to close the site (time or number of missed passes) is also listed.

For location protocol beacons (i.e., beacons with a GPS/navigation input) the BEACON ID represents the digital message with the location bits defaulted. This ensures that everyone involved refers to the same beacon even if the position is changing.

This message provides the first alert unresolved or the ambiguity resolved LATITUDE and LONGITUDE position in degrees, minutes, tenths of minutes and hemisphere. If ambiguity has been resolved for the site the DURATION is provided. The DURATION is the length of time the signal has been considered active. For consistency, the time period is measured referencing the time at which a satellite was closest to a signal source, or Time of Closest Approach (TCA). It is the amount of time between the first satellite pass TCA and the most recent or last satellite pass TCA. The number of satellite PASSES that detected the beacon is also provided.

If ambiguity has not been resolved for the site, the DETECT TIME is provided in date-time group in Zulu time (UTC), and the SATellite which detected the beacon is identified by three characters. The first character identifies the type of satellite ("C" for Cospas, "S" for Sarsat, "G"

for GOES, and an “I” for Insat), the remaining two digits are the satellite number.

For unresolved sites and resolved sites the SRR is the search and rescue region in which the alert falls is listed. If the alert falls in a BUFFER zone, the adjacent SRR is listed as well. If an alert falls in the BUFFER zone for three or more SRRs, it will be properly routed, but the messages received at each RCC will list only one BUFFER zone.

The Missed Pass (MP) counter provides the number of passes that have ***not*** detected the beacon since the last detection. For 406 MHz sites where ambiguity has been resolved, the counter only refers to the resolved position. A 406 MHz site will close when there have been three consecutive missed passes on the resolved position.

For sites where ambiguity has not been resolved, the first alert positions (A, B or E) will have independent counters. If ambiguity is not resolved, the site will close when there have been three consecutive missed passes on both the “A” and the “B” positions, or on the encoded position. A site with position conflict will not close due to missed passes, unless ambiguity is resolved.

The CLOSED field indicates the current status of the site, and if the site is closed, the reason why it was closed. This field has four values ("NO", "YES - MP", “YES-OPERATOR", and “YES - TIME"), where “YES - MP” indicates that the site closed due to missed passes, “YES-OPERATOR" indicates that the site was forced closed by the MCC operator, and "YES - TIME" indicates that the 406 MHz site closed because 18 hours passed without a detection. Closing an MCC site is not intended to give the RCC direction on prosecuting a SAR case but is primarily an MCC administrative function.

The DETECT TIME at which the beacon should have been detected, along with the SATellite and the SOURCE (the Local User Terminal (LUT) that should have detected the beacon) are provided.

Support Data Block

This block provides supporting information about this alert message and any other alert messages sent concerning this beacon. The USMCC PROCESSING TIME is given as a date-time group in Zulu time (UTC).

Destinations that THIS particular ALERT MESSAGE IS BEING SENT TO are identified. The header ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO contains information on all destinations that previously received alert messages for this beacon. PREVIOUS PASS INFORMATION may contain information for an unlocated alert which was previously transmitted.

The LATITUDE, LONGITUDE, DETECT TIME, and SOURCE fields for a given previous alert may change from message to message. This is due to the fact that additional information for a specific satellite pass may come in from other sources even after you receive a message from the USMCC. Most often, you will receive a message as soon as the first piece of data comes in from a US LUT or Foreign MCC. As other data from the same satellite pass comes in, the file is updated but no new messages are sent as long as the information is essentially the same. The most common change you will observe will be when the SouRCE of the data changes from a single source to MULTIple sources - this will usually result in a slight change in the position and DETECT TIME.

The NEXT TIME SIGNAL SHOULD BE DETECTED indicates the next two satellite passes that should detect the beacon SOLution. Next pass prediction is based on mutual visibility between the beacon, a polar orbiting satellite, and a United States LUT which is scheduled to track that particular satellite pass. The DETECT TIME is the date-time that the next scheduled pass is to pass over the beacon. The SAT is the next satellite to pass over the beacon, and SOURCE is the LUT scheduled to track that pass.

The VISIBILITY of a satellite varies based on the elevation of the satellite above the horizon (relative to both the signal source and the LUT antenna) and the geographic and man-made obstructions in the vicinity of the LUT antenna. In general, satellite passes with elevation angles between 5 and 90 degrees above the horizon provide usable data.

Satellite passes where the elevation angle is at least 10 degrees are termed “HIGH” passes. A high satellite pass over a reported signal source which fails to detect the signal is referred to as a “MISSED PASS” and a message will be sent to the RCC advising them of the missed pass.
Satellite passes where the elevation angle is between 5 and 10 degrees are termed “LOW” passes.
Satellite passes where the elevation angle is less than 5 degrees are not listed as predicted passes. If such a pass were to detect the signal, the information would be passed to the RCC.

*A low satellite pass over a reported signal source which fails to detect the signal is **not** a missed pass, thus a missed pass report will not be sent to the RCC.*

Four examples of 406 beacon missed pass/site status reports are provided. Note that when a site closes due to time or operator action for a site without location, the SOL = ‘U’ and the LAT and LON are set to “N/A”

- Remainder of Page Blank -

```
/61243 00000/3660/98 048 1330
/166/366A

*****************  406 BEACON MISSED PASS/SITE STATUS REPORT  ***************

BEACON ID: ADCD0 16672 C0401      SITE ID: 73321 (OPEN)
*************************  CURRENT ACTIVE SITE  ****************************

LATITUDE LONGITUDE  DURATION   PASSES  SRR   /BUFFER  MP
64 12.8N 149 23.0W  014.3 HRS  006     AKRCC           1

*********** ABOVE BEACON WAS NOT DETECTED DURING THE FOLLOWING PASS  ********

DETECT TIME  SAT SOURCE
17 1300 FEB  C6  AK1
```

********** SUPPORTING INFORMATION **********

USMCC PROCESSING TIME: 17 1330 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
AFRCC

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:
AFRCC, CMCC

PREVIOUS PASS INFORMATION:

PROB	SOL	LATITUDE LONGITUDE	DETECT TIME	SAT	SOURCE	SRR /BUFFER
50	A	64 12.9N 148 23.3W	17 1023 FEB	S3	AK1	AKRCC
90	A	64 11.9N 152 11.9W	17 0400 FEB	S4	CMCC	AKRCC
N/A	E	64 17.4N 149 23.3W	16 2345 FEB	C4	AK2	AKRCC

NEXT TIME SIGNAL SHOULD BE DETECTED:

SOL	DETECT TIME	SAT	SOURCE	VISIBILITY
C	17 1539 FEB	C6	AK1	LOW (WILL NOT COUNT AS MISSED PASS)
C	17 1735 FEB	S4	AK1	HIGH

QQQQ
/LASSIT
/ENDMSG

```
/61243 00000/3660/98 048 1330
/166/366A

*****************  406 BEACON MISSED PASS/SITE STATUS REPORT
****************

BEACON ID: ADCD0 16672 C0401      SITE ID: 73321 (OPEN)

*************************  CURRENT ACTIVE SITE  ****************************

SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE  SRR   /BUFFER  MP
A    64 13.6N 149 24.1W  17 1151 FEB  S3   CMCC    AKRCC          1

************ ABOVE BEACON WAS NOT DETECTED DURING THE FOLLOWING PASS
********

DETECT TIME  SAT SOURCE
17 1300 FEB  C6  AK1
```

********** SUPPORTING INFORMATION **********

USMCC PROCESSING TIME: 17 1330 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
AFRCC

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:
AFRCC, CMCC

PREVIOUS PASS INFORMATION:

PROB	SOL	LATITUDE LONGITUDE	DETECT TIME	SAT	SOURCE	SRR /BUFFER
50	A	64 12.9N 148 23.3W	17 1023 FEB	S3	AK1	AKRCC
90	A	64 11.9N 152 11.9W	17 0400 FEB	S4	CMCC	AKRCC
N/A	E	64 17.4N 149 23.3W	16 2345 FEB	C4	AK2	AKRCC

NEXT TIME SIGNAL SHOULD BE DETECTED:

SOL	DETECT TIME	SAT	SOURCE	VISIBILITY
A	17 1539 FEB	C6	AK1	HIGH
A	17 1739 FEB	S4	AK1	LOW (WILL NOT COUNT AS MISSED PASS)

QQQQ
/LASSIT
/ENDMSG

```
/61243 00000/3660/98 048 1330
/166/366A

*****************  406 BEACON MISSED PASS/SITE STATUS REPORT
****************

BEACON ID: ADCD0 16672 C0401      SITE ID: 73321 (CLOSED - MISSED PASS)
*************************  CURRENT ACTIVE SITE  ****************************

LATITUDE LONGITUDE  DURATION   PASSES  SRR   /BUFFER  MP
64 12.8N 149 23.0W  014.3 HRS  006     AKRCC           3

************ ABOVE BEACON WAS NOT DETECTED DURING THE FOLLOWING PASS
********

DETECT TIME  SAT SOURCE
17 1800 FEB  C6  AK1
```

********** SUPPORTING INFORMATION **********

USMCC PROCESSING TIME: 17 1830 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
AFRCC

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:
AFRCC, CMCC

PREVIOUS PASS INFORMATION:

PROB	SOL	LATITUDE LONGITUDE	DETECT TIME	SAT	SOURCE	SRR /BUFFER
50	A	64 12.9N 148 23.3W	17 1023 FEB	S3	AK1	AKRCC
90	A	64 11.9N 152 11.9W	17 0400 FEB	S4	CMCC	AKRCC
N/A	E	64 17.4N 149 23.3W	16 2345 FEB	C4	AK2	AKRCC

NEXT TIME SIGNAL SHOULD BE DETECTED:

SOL	DETECT TIME	SAT	SOURCE	VISIBILITY
C	17 2039 FEB	C6	AK1	LOW (WILL NOT COUNT AS MISSED PASS)
C	17 2135 FEB	S4	AK1	HIGH

QQQQ
/LASSIT
/ENDMSG

```
/15058 00000/3660/01 246 1352
/166/366U

*****************  406 BEACON MISSED PASS/SITE STATUS REPORT  ***************

BEACON ID: DB476 E2E29 D64A1      SITE ID: 27336 (CLOSED - TIME)

*************************  CURRENT ACTIVE SITE   ***************************

SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE  SRR   /BUFFER  MP
B    29 31.6N 114 42.5W  02 1647 SEP  S4   OSE     MEXISP/PACARE  2

************ ABOVE BEACON WAS NOT DETECTED DURING THE FOLLOWING PASS
********

DETECT TIME  SAT SOURCE
NA           NA  NA

************************  SUPPORTING INFORMATION  ***************************

USMCC PROCESSING TIME: 03 1352 SEP

THIS ALERT MESSAGE IS BEING SENT TO:
        SANJN, PACAREA

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:
        MEXISP, PACAREA, SANJN, COLMSP

PREVIOUS PASS INFORMATION:

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE SRR   /BUFFER
50    A    19 48.5N 069 42.4W  02 1647 SEP  S4   MULT   SANJN
50    B    29 31.7N 114 42.2W  02 1647 SEP  S4   MULT   MEXISP/PACARE
N/A   U    N/A      N/A        02 1730 SEP  C9   OSE

NEXT TIME SIGNAL SHOULD BE DETECTED:

SOL  DETECT TIME  SAT  SOURCE  VISIBILITY
B    03 1345 SEP  C8   TX1     HIGH
B    03 1425 SEP  S7   SSE     HIGH

QQQQ
/LASSIT
/ENDMSG
```

```
04780 00000/3660/05 216 1600
/166/366N

*****************  406 BEACON MISSED PASS/SITE STATUS REPORT  ****************

BEACON ID: ADCE0 4E95D 41801      SITE ID: 32685 (CLOSED - BY MCC OPERATOR)

*************************  CURRENT ACTIVE SITE   *************************

LATITUDE LONGITUDE  DURATION   PASSES  SRR   /BUFFER  MP
38 39.6N 073 45.3W  002.0 HRS  006                    0

************ ABOVE BEACON WAS NOT DETECTED DURING THE FOLLOWING PASS  ********

DETECT TIME  SAT SOURCE
NA           NA  NA

************************  SUPPORTING INFORMATION  ***************************

USMCC PROCESSING TIME: 04 1412 AUG

THIS ALERT MESSAGE IS BEING SENT TO:
        LANTAREA

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:
        CMCC,CGD01,LANTAREA

PREVIOUS PASS INFORMATION:

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE SRR   /BUFFER
50    B    38 41.1N 073 50.9W  03 2013 AUG  S7   LSE    LANTAR
97    A    38 43.2N 073 50.7W  03 2003 AUG  S8   LSE    LANTAR
47    B    38 41.5N 073 43.4W  03 1908 AUG  S10  LSE    LANTAR
93    A    38 36.5N 073 42.2W  03 1823 AUG  S8   LSE    LANTAR

NEXT TIME SIGNAL SHOULD BE DETECTED: N/A

QQQQ
/LASSIT
/ENDMSG
```

3.12 **406 Beacon Detection Update** (SIT 167)

This message is transmitted when a 406 unlocated alert causes the missed pass counter to be reset or is at least two hours after the last detection reported to the RCC.

Message Administration Block

The message administration block does not contain any labels. This block provides the current and original message numbers for this message to the RCC. Current message numbers are sequential to enable message tracking by RCCs. The original message number will be listed if the current message is a retransmission of a previous message.

Other information provided in this block includes the reporting MCC of the alert (the code for the USMCC is 3660), the time the message was transmitted, the Subject Indicator Type (SIT), the destination RCC, and the message title. The Subject Indicator Type is a numerical identifier for a specific type of message, thus a 406 beacon detection updated can also be referred to as a SIT 167.

Alert Data Block

This block starts by providing the BEACON ID which identifies the 15 character hexa-decimal identifier and the five digit USMCC SITE ID for the 406 MHz beacon.

For location protocol beacons (i.e., beacons with a GPS/navigation input) the BEACON ID represents the digital message with the location bits defaulted. This ensures that everyone involved refers to the same beacon even if the position is changing.

The unlocated alert which updated the active site is provided. As there is no location information, the PROBability, SOLution, LATITUDE and LONGITUDE are not available. The DETECT TIME is provided in date-time group in Zulu time (UTC), and the SATellite which detected the beacon is identified by three characters. The first character identifies the type of satellite (“C” for Cospas, “S” for Sarsat, “G” for GOES, and an “I” for Insat), the remaining two digits are the satellite number. The SOURCE is the local user terminal (LUT) or MCC that detected the beacon.

Support Data Block

This block provides supporting information about this alert message and any other alert messages sent concerning this beacon. The USMCC PROCESSING TIME is given as a date-time group in Zulu time (UTC).

Destinations that THIS particular ALERT MESSAGE IS BEING SENT TO are identified. ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO contains information on all destinations that previously received alert messages for this beacon. PREVIOUS PASS INFORMATION may contain information for an unlocated alert which was previously transmitted.

The NEXT TIME SIGNAL SHOULD BE DETECTED indicates the next two satellite passes that should detect the beacon SOLution. Next pass prediction is based on mutual visibility between the beacon, a polar orbiting satellite, and a United States LUT which is scheduled to track that particular satellite pass. The DETECT TIME is the date-time that the next scheduled pass is to pass over the beacon. The SAT is the next satellite to pass over the beacon, and SOURCE is the LUT scheduled to track that pass.

The VISIBILITY of a satellite varies based on the elevation of the satellite above the horizon (relative to both the signal source and the LUT antenna) and the geographic and man-made obstructions in the vicinity of the LUT antenna. In general, satellite passes with elevation angles between 5 and 90 degrees above the horizon provide usable data.

Satellite passes where the elevation angle is at least 10 degrees are termed “HIGH” passes. A high satellite pass over a reported signal source which fails to detect the signal is referred to as a “MISSED PASS” and a message will be sent to the RCC advising them of the missed pass.
Satellite passes where the elevation angle is between 5 and 10 degrees are termed “LOW” passes.
Satellite passes where the elevation angle is less than 5 degrees are not listed as predicted passes. If such a pass were to detect the signal, the information would be passed to the RCC.

> *A low satellite pass over a reported signal source which fails to detect the signal is* ***not*** *a missed pass, thus a missed pass report will not be sent to the RCC.*

An example of a 406 beacon detection updated is provided on the next page.

/61243 00000/3660/98 048 1330
/167/366A

********** 406 BEACON DETECTION UPDATE **********

BEACON ID: ADCD0 16672 C0401 SITE ID: 73321

********** DETECTION UPDATE DUE TO FOLLOWING UNLOCATED ALERT **********

PROB	SOL	LATITUDE LONGITUDE	DETECT TIME	SAT	SOURCE
N/A	N/A	N/A	17 1300 FEB	C6	AK1

********** SUPPORTING INFORMATION **********

USMCC PROCESSING TIME: 17 1330 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
AKRCC

ALERT MESSAGES FOR THIS BEACON PREVIOUSLY SENT TO:
AKRCC

PREVIOUS PASS INFORMATION:

PROB	SOL	LATITUDE LONGITUDE	DETECT TIME	SAT	SOURCE	SRR /BUFFER
50	A	64 12.9N 148 23.3W	17 1023 FEB	S3	AK1	AKRCC
90	A	64 11.9N 152 11.9W	17 0400 FEB	S4	CMCC	AKRCC
N/A	E	64 17.4N 149 23.3W	16 2345 FEB	C4	AK2	AKRCC

NEXT TIME SIGNAL SHOULD BE DETECTED:

SOL	DETECT TIME	SAT	SOURCE	VISIBILITY
C	17 1539 FEB	C6	AK1	HIGH
C	17 1739 FEB	S4	AK1	HIGH

QQQQ
/LASSIT
/ENDMSG

3.13 USA 406 Beacon Detected Outside US AOR (SIT 168)

This message is transmitted whenever a United States county coded beacon is detected outside the US Area of Responsibility (AOR)**.** The data for this alert message may have originated at a foreign MCC or a national LUT. The beacon ID, the two calculated positions or the encoded position, and any other available information about the beacon is included in the message. This is the only message which will be transmitted to the RCC unless specific arrangements are made at the USMCC to add the RCC to the distribution for subsequent alerts.

Message Administration Block

The message administration block does not contain any labels. This block provides the current and original message numbers for this message to the RCC. Current message numbers are sequential to enable message tracking by RCCs. The original message number will be listed if the current message is a retransmission of a previous message.

Other information provided in this block includes the reporting MCC of the alert (the code for the USMCC is 3660), the time the message was transmitted, the Subject Indicator Type (SIT), the destination RCC, and the message title. The Subject Indicator Type is a numerical identifier for a specific type of message, thus a 406 beacon detected outside the US AOR can also be referred to as a SIT 168.

Alert Data Block

This block starts by providing the BEACON ID which identifies the 15 character hexa-decimal identifier and the five digit USMCC SITE ID for the 406 MHz beacon.

For location protocol beacons (i.e., beacons with a GPS/navigation input) the BEACON ID represents the digital message with the location bits defaulted. This ensures that everyone involved refers to the same beacon even if the position is changing.

The real and image Doppler solutions or the encoded solution is provided. The PROBability is provided for Doppler solutions only. It is the probability that the corresponding solution is the real solution. Encoded solutions are obtained from a GPS source or other navigation device, not derived from Doppler processing. Therefore, they do not have a corresponding probability. The SOLution identifies whether the corresponding solution is the “A” location (the location more likely to be the real solution) or the “B” location. An “E” identifies the solution as an encoded solution. The LATITUDE and LONGITUDE of the Doppler and/or encoded position(s) are provided in degrees, minutes, tenths of minutes and hemisphere.

The DETECT TIME is given as a date-time group in Zulu time (UTC). The SATellite which

detected the beacon is identified by three characters. The first character identifies the type of satellite ("C" for Cospas, "S" for Sarsat, "G" for GOES, and an "I" for Insat), the remaining two digits are the satellite number. The SOURCE is listed as the Local User Terminal (LUT) or MCC which provided the data.

The SRR is the search and rescue region in which the alert falls is listed. If the alert falls in a BUFFER zone, the adjacent SRR is listed as well. If an alert falls in the BUFFER zone for three or more SRRs, it will be properly routed, but the messages received at each RCC will list only one BUFFER zone.

When the A/B probability split between two solutions is 50/50, the beacon is just as likely to be in either location. Plot the locations and look at the beacon decode and registration data; this information usually allows you to determine which is the actual position. 50/50 solutions also tend to be less accurate.

Beacon Decode Data Block

The information in this block is automatically decoded from the transmitted 406 MHz digital message. The information can be derived from, or linked to the bits contained in the 406 MHz digital message.

The COUNTRY field identifies the country, nationality, state or territory associated with the beacon. It identifies the country that maintains registration information for the beacon. The MID CODE is the three digit code assigned by the International Telecommunications Union and corresponds to the COUNTRY.

The MANUFACTURER, and MODEL number of the beacon is provided for beacons that are coded with a United States serialized protocol. The SERIAL NUMber is the unique serial number of the beacon. The CRAFT ID contains the encoded radio call sign, MMSI number, aircraft tail number, registration marking, 24-bit aircraft address, or aircraft operator designator. HOMING identifies the frequency and type of homer on the beacon. BEACON TYPE identifies the type (i.e., EPIRB, ELT or PLB) of the beacon, as well as the coding scheme.

Beacon Registration Data Block

This block provides the data stored in the USMCC Registration Database. All information available in the database is automatically provided here. The remarks section will contain any special notes as a result of feedback from the owner, United States Coast Guard, United States Air Force, or other responding agency, which amplifies the registration information. Refer to Appendix 1 for further information.

Support Data Block

This block provides supporting information about this alert message and any other alert messages sent concerning this beacon. The USMCC PROCESSING TIME is given as a date-time group in Zulu time (UTC).

Destinations that THIS particular ALERT MESSAGE IS BEING SENT TO are identified. ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO contains information on all destinations that previously received alert messages for this beacon. PREVIOUS PASS INFORMATION may contain information for an unlocated alert which was previously transmitted.

The NEXT TIME SIGNAL SHOULD BE DETECTED indicates the next two satellite passes that should detect the beacon SOLution. Next pass prediction is based on mutual visibility between the beacon, a polar orbiting satellite, and a United States LUT which is scheduled to track that particular satellite pass. The DETECT TIME is the date-time that the next scheduled pass is to pass over the beacon. The SAT is the next satellite to pass over the beacon, and SOURCE is the LUT scheduled to track that pass.

The VISIBILITY of a satellite varies based on the elevation of the satellite above the horizon (relative to both the signal source and the LUT antenna) and the geographic and man-made obstructions in the vicinity of the LUT antenna. In general, satellite passes with elevation angles between 5 and 90 degrees above the horizon provide usable data.

Satellite passes where the elevation angle is at least 10 degrees are termed “HIGH” passes. A high satellite pass over a reported signal source which fails to detect the signal is referred to as a “MISSED PASS” and a message will be sent to the RCC advising them of the missed pass. Satellite passes where the elevation angle is between 5 and 10 degrees are termed “LOW” passes.
Satellite passes where the elevation angle is less than 5 degrees are not listed as predicted passes. If such a pass were to detect the signal, the information would be passed to the RCC.

*A low satellite pass over a reported signal source which fails to detect the signal is **not** a missed pass, thus a missed pass report will not be sent to the RCC.*

Incident Feedback Report

Each 406 site requires documentation in order to identify opportunities to improve beacon design, beacon usage, regulation, information processing and alert response. The United States Air Force, United States Coast Guard, and NOAA have worked together to establish the minimum information required to improve the system; the incident feedback report requests this

information from the RCCs which were involved in response to a given beacon alert. The guidelines contained at Appendix A will facilitate completing the Incident Feedback Report.

> *The SAR Mission Coordinator (SMC) is usually best qualified to complete the Incident Feedback Report.*

An example of a 406 beacon detected outside the US AOR message is provided on the next page.

- Remainder of Page Blank -

/61246 00000/3660/98 046 0105
/168/366N

********** USA 406 BEACON DETECTED OUTSIDE US AOR **********

BEACON ID: 2DC83 81E3A FFBFF SITE ID: 27519

********** DETECTION TIME AND POSITIONS FOR THE BEACON **********

PROB	SOL	LATITUDE	LONGITUDE	DETECT TIME	SAT	SOURCE	SRR	/BUFFER
50	A	08 25.6N	097 12.3E	15 0045 FEB	S3	SSE	INMCC	
50	B	09 35.6N	147 18.3E	15 0045 FEB	S3	SSE	HKMCC	

********** BEACON ID CONTAINS THE FOLLOWING ENCODED INFORMATION **********

COUNTRY : USA CRAFT ID :
MID CODE : 366 HOMING : 121.5 MHZ
MANUFACTURER: CSTA# 112 MODEL :
SERIAL NUM : 3869 BEACON TYPE: ELT SERIAL (STANDARD)

********** USMCC REGISTRATION DATABASE INFORMATION **********

OWNER: BENSON FOOTBALL INC
5800 AIRLINE DRIVE TEL 1: WORK 5047311806
METAIRIE LA TEL 2:
70003 USA TEL 3:
TEL 4:
EMAIL:

CONTACTS: BENSON FOOTBALL OFFICE BENSON INC
TEL 1: WORK 5047311800 TEL 1: WORK 2103496200
TEL 2: TEL 2:
TEL 3: TEL 3:
TEL 4: TEL 4:

LEASING AGENT:

AIRCRAFT MANUFACTURER/MODEL: LEARJET / 60
AIRCRAFT USE: GENERAL AVIATION COLOR: WHT/BLCK/GOLD
RADIO EQP: CAPACITY: 9
TAIL NUMBER: N411ST

FIXED SURVIVAL CRAFT DESCRIPTION:

DEPLOYABLE SURVIVAL CRAFT DESCRIPTION:

AIRPORT PRIMARY SRR: AFRCC SECONDARY SRR:
AIRPORT: KMSY NEW ORLEANS LA

MANUFACTURER: ARTEX MODEL NUMBER: C406-2

DATE FIRST REGISTERED: 06 JUN 2003 DATE DECAL EXPIRES: 06 JUN 2005
DATE LAST UPDATED: 06 JUN 2003

REMARKS:

SPECIAL STATUS: SPECIAL STATUS DATE:
SPECIAL STATUS INFO:

********** SUPPORTING INFORMATION **********

USMCC PROCESSING TIME: 15 0104 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
LANTAR, PACAR

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:
INMCC, HKMCC

PREVIOUS PASS INFORMATION: N/A

NEXT TIME SIGNAL SHOULD BE DETECTED: N/A

QQQQ
/LASSIT
/ENDMSG

**** INCIDENT FEEDBACK REPORT FOR 406 ALERT, FAX BACK TO 301-457-5406 *******

BEACON ID: ADCD0 16672 C0401 DETECT TIME: 15 0045 FEB SITE ID: 73326
CALCULATED A LAT: 08 25.6N LONG: 097 12.3E
CALCULATED B LAT: 09 35.6N LONG: 147 18.3E

CEASED / DISTRESS / NON-DISTRESS

INCIDENT/MISSION/ CASE NUMBER:

INCIDENT/MISSION/ CASE START TIME:

COSPAS-SARSAT ONLY NOTIFICATION? YES / NO

COSPAS-SARSAT FIRST NOTIFICATION? YES / NO

COSPAS-SARSAT USED FOR LOCATION ONLY? YES / NO

STATE OR GENERAL LOCATION:

TIME RESCUE FORCES ARRIVED (GMT):
____/____/____/____:____ (YY/MM/DD/HH:MM)

RESCUED: TOTAL INVOLVED:

ACTUAL LOCATION LAT: LONG:

HOW DETERMINED:
 LORAN / OMEGA / VOR / VOR-DME / TACAN / SATNAV / GPS / CHART / OTHER

HOW ACTIVATED:
 AUTOMATIC / MANUAL / USER-ERROR / BEACON-PROBLEM / BRACKET FAILURE

WHY ACTIVATED: DISTRESS / TEST / OTHER

VESSEL/AIRCRAFT TYPE AND NAME:

HOURS OF RESOURCE ALLOCATED:
BOAT____ CUTTER____ HELO____ FIXED WING____ CAP____ OTHER____

TIME ALERT DETERMINED TO BE A FALSE ALARM OR RESOURCE LAUNCHED (GMT):
____/____/____/____:____ (YY/MM/DD/HH:MM)

GEOSAR DATA USED TO RESOLVE INCIDENT? YES / NO

BEACON MANUFACTURER: LITTON

BEACON MODEL:

BEACON TYPE: MARITIME FLOAT-FREE

WAS 406 BEACON REGISTRATION DATA USED TO RESOLVE INCIDENT: YES / NO

```
REMARKS:
QQQQ
/LASSIT
/ENDMSG
```

3.14 406 Beacon Encoded Position Update (SIT 169)

This message is generated when the position encoded in the 406 MHz beacon message changes by more than 3 kilometers and less than 50 kilometers. The purpose of this message is to provide SAR forces with more timely updates on beacon position, which may be particularly valuable in difficult SAR conditions, such as rough seas or mountainous terrain.

An encoded position update message may be provided prior to or after ambiguity resolution. This message will usually be generated in the absence of Doppler location; for example, when a GOES satellite provides encoded position updates between passes of LEO satellites. However, this message may be generated when Doppler position is present, if the Doppler position data is redundant. If the encoded position changes and new Doppler position data is available (for example, ambiguity resolution), then the message will include the new encoded position but the message type (SIT number) will be based on the new Doppler position data.

With the exception of the message title and the secondary header, the format of the encoded position update is very similar to other 406 alert messages. Examples are provided below.

```
/76947 00000/3660/08 001 1904
/169/366B

**********  406 BEACON ENCODED POSITION UPDATE (AMBIGUITY UNRESOLVED) ********

BEACON ID: 2DD43 B9E3F 81FE0      SITE ID: 60818

*****************  DETECTION TIME AND POSITIONS FOR THE BEACON  **************

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE SRR   /BUFFER
N/A   E    26 55.4N 093 03.1W  01 1855 JAN  G12  GSE    CGD08 /CGD01

************  BEACON ID CONTAINS THE FOLLOWING ENCODED INFORMATION ***********

COUNTRY     : USA              CRAFT ID   :
MID CODE    : 366              HOMING     : 121.5 MHZ
MANUFACTURER:                  MODEL      :
SERIAL NUM  : 30524            BEACON TYPE: EPIRB SERIAL (NATIONAL)

*************  USMCC REGISTRATION DATABASE INFORMATION  ************

OWNER: LiferaftRental.com LLC
       907 Hanshaw Rd #113            TEL 1: WORK 6072806484
       Ithaca                  NY     TEL 2: FAX
       14850     USA                  TEL 3:
                                      TEL 4:
       EMAIL: liferaftrental@juno.com

CONTACTS: LiferaftRental.com LLC
     TEL 1: WORK 6072806484           TEL 1:
     TEL 2:                           TEL 2:
     TEL 3:                           TEL 3:
     TEL 4:                           TEL 4:

VESSEL NAME: (no data provided)
TYPE: SAIL 0 Masts                    LENGTH OVERALL (FT):     0
COLOR: (no data provided)             CAPACITY:     0
RADIO CALL SIGN:                      REGISTRATION NO:
RADIO EQP:                            INMARSAT NUMBER:
CELLULAR NUMBER:

NUMBER OF LIFE BOATS:     0           NUMBER OF LIFE RAFTS:     0

HOME PORT PRIMARY SRR: CGD01          SECONDARY SRR:
HOME PORT: (no data provided)          (no data provided)          XX

MANUFACTURER: Mcmurdo                 MODEL NUMBER: 82-514A
ACTIVATION TYPE: CAT2 (MANUAL)

BEACON CONTAINS SVDR: NO

DATE FIRST REGISTERED: 18 JUL 2006    DATE DECAL EXPIRES: 19 JUL 2009
DATE LAST UPDATED: 05 DEC 2007

REMARKS:

SPECIAL STATUS:                     SPECIAL STATUS DATE:
SPECIAL STATUS INFO:
```

********** SUPPORTING INFORMATION **********

USMCC PROCESSING TIME: 01 1904 JAN

THIS ALERT MESSAGE IS BEING SENT TO:
CGD01,CGD08

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:
CGD01,CGD08

PREVIOUS PASS INFORMATION:

PROB	SOL	LATITUDE LONGITUDE	DETECT TIME	SAT	SOURCE	SRR /BUFFER
N/A	E	26 53.1N 093 05.4W	01 1855 JAN	G12	MULT	CGD08

NEXT TIME SIGNAL SHOULD BE DETECTED:

SOL	DETECT TIME	SAT	SOURCE	VISIBILITY
E	01 2047 JAN	S10	CA2	HIGH
E	01 2132 JAN	S8	FL2	HIGH

QQQQ
/LASSIT
/ENDMSG

```
/07920 00000/3660/08 002 1523
/169/366O

***********  406 BEACON ENCODED POSITION UPDATE (AMBIGUITY RESOLVED) *********

BEACON ID: 2DD43 B9E3F 81FE0      SITE ID: 60818

**************************  COMPOSITE POSITION  ************************

LATITUDE LONGITUDE  DURATION   PASSES  SRR   /BUFFER
26 39.2N 093 07.9W  020.5 HRS  020     CGD08 /CGD01

*****************  POSITION UPDATED FROM THE FOLLOWING ALERT  ***************

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE
N/A   E    26 21.7N 093 04.3W  02 1518 JAN  S11  LSE

************  BEACON ID CONTAINS THE FOLLOWING ENCODED INFORMATION ***********

COUNTRY     : USA              CRAFT ID   :
MID CODE    : 366              HOMING     : 121.5 MHZ
MANUFACTURER:                  MODEL      :
SERIAL NUM  : 30524            BEACON TYPE: EPIRB SERIAL (NATIONAL)

*************  USMCC REGISTRATION DATABASE INFORMATION  ************

OWNER: LiferaftRental.com LLC
       907 Hanshaw Rd #113            TEL 1: WORK 6072806484
       Ithaca                  NY     TEL 2: FAX
       14850     USA                  TEL 3:
                                      TEL 4:
       EMAIL: liferaftrental@juno.com

CONTACTS: LiferaftRental.com LLC
     TEL 1: WORK 6072806484           TEL 1:
     TEL 2:                           TEL 2:
     TEL 3:                           TEL 3:
     TEL 4:                           TEL 4:

VESSEL NAME: (no data provided)
TYPE: SAIL 0 Masts                    LENGTH OVERALL (FT):     0
COLOR: (no data provided)             CAPACITY:     0
RADIO CALL SIGN:                      REGISTRATION NO:
RADIO EQP:                            INMARSAT NUMBER:
CELLULAR NUMBER:

NUMBER OF LIFE BOATS:     0           NUMBER OF LIFE RAFTS:     0

HOME PORT PRIMARY SRR: CGD01          SECONDARY SRR:
HOME PORT: (no data provided)          (no data provided)          XX

MANUFACTURER: Mcmurdo                 MODEL NUMBER: 82-514A
ACTIVATION TYPE: CAT2 (MANUAL)

BEACON CONTAINS SVDR: NO

DATE FIRST REGISTERED: 18 JUL 2006    DATE DECAL EXPIRES: 19 JUL 2009
DATE LAST UPDATED: 05 DEC 2007
```

REMARKS:

SPECIAL STATUS: SPECIAL STATUS DATE:
SPECIAL STATUS INFO:

********** SUPPORTING INFORMATION **********

USMCC PROCESSING TIME: 02 1523 JAN

THIS ALERT MESSAGE IS BEING SENT TO:
CGD08

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:
CGD01,CGD08

PREVIOUS PASS INFORMATION:

PROB	SOL	LATITUDE	LONGITUDE	DETECT TIME	SAT	SOURCE
N/A	E	26 24.9N	093 05.5W	02 1402 JAN	S11	LSE
77	A	26 39.4N	093 11.6W	02 0551 JAN	S9	LSE
95	A	26 41.1N	093 11.8W	02 0433 JAN	S11	MULT
64	A	26 30.4N	093 08.2W	02 1047 JAN	S7	LSE

NEXT TIME SIGNAL SHOULD BE DETECTED:

SOL	DETECT TIME	SAT	SOURCE	VISIBILITY
C	02 1634 JAN	S9	CA1	HIGH
C	02 1658 JAN	S11	CA1	HIGH

QQQQ
/LASSIT
/ENDMSG

4 Support Messages

The following sections contain an explanation of the different support messages. The explanation is followed by an example of the support message. Definitions for the different elements, or fields, in support messages are provided in Appendix 1.

4.1 **Narrative Message** (SIT 950)

This message is used to transmit a free format message from the MCC to the RCC. It is also used to indicate changes in System status. These changes include satellite, LUT or MCC failures, scheduled maintenance, and the integration or testing of new elements. An example is provided below.

```
/00126 00000/3660/98 046 0105
/950/366J

THIS IS A FREE FORMAT MESSAGE

QQQQ
/LASSIT
/ENDMSG
```

4.2 **Alert Site Query Reports** (SIT 951)

This message is sent in response to an RCC's request for information concerning alert activity in a specific area or for a specific beacon. The USMCC will retrieve all Cospas-Sarsat alerts for a specified time period, geographical area or 406 MHz beacon identity. There are three levels of information which can be retrieved. A Level 1 query provides a summary of active or closed sites. Level 2 queries provide Level 1 information as well as a summary of each satellite pass over the beacon or signal. Level 3 queries provide Level 2 information as well as a detailed listing of all information for each Site ID.

4.2.1 Level One: Alert Query Report

Level One reports provide high level information to the RCCs and SPOCs. It provides the RCC/SPOC with an overview of alert activity in a geographical area (defined a rectangle or point and radius), beacon frequency, beacon ID (for 406 MHz beacons) and/or time period. Sufficient detail is provided to enable the search planner to make specific requests for detailed alert information. The following is a sample report for a radius query.

```
/58231 00000/3660/99 245 1827
/951/366X
/
                          SEARCH CRITERIA
CENTER POSITION: 38 20N, 076 14W  RADIUS:        200
NORTH BOUNDARY:  NONE             EAST BOUNDARY: NONE
SOUTH BOUNDARY:  NONE             WEST BOUNDARY: NONE
REPORT START:    02 1418 SEP 99   REPORT END:  02 1818 SEP 99
SEARCH FREQ:     406              SITE ID:       N/A
BEACON ID:       N/A              COUNTRY CODE:  N/A
MMSI, SHIP CALL SIGN, OR AIRCRAFT REGISTRATION:  N/A

                            SEARCH RESULTS
LATITUDE LONGITUDE FIRST TCA   DUR FREQ SWP SITE/BEACON ID
                   02 1111 SEP 0.0  406 UNK ADCD020A8440801
62 00.3N 005 15.1E 02 1057 SEP 0.1  406 UNK A068A29C34D34D1
21 29.5S 012 35.8E 02 1145 SEP 1.7  406 UNK CF8A4C29F7040D1
23 07.8S 017 03.4W 02 1145 SEP 1.7  406 UNK CF8A4C29F7040D1

QQQQ
/LASSIT
/ENDMSG
```

4.2.2 Level Two: Alert Query Detail Report

Level Two reports provide detailed information regarding specific alerts. This report provides the RCC/SPOC with an overview of alert activity in a certain area (defined by region and time) or beacon activity (based on Beacon ID and time) and the details for each alert. This report can be lengthy based on the search criteria. This following is an example of a Level Two report.

```
/58205 00000/3660/99 245 1822
/951/366X
/
                          SEARCH CRITERIA
CENTER POSITION: NONE             RADIUS:         NONE
NORTH BOUNDARY:  NONE             EAST BOUNDARY: NONE
SOUTH BOUNDARY:  NONE             WEST BOUNDARY: NONE
REPORT START:    02 1418 SEP 99   REPORT END:  02 1818 SEP 99
SEARCH FREQ:     406              SITE ID:       N/A
BEACON ID:       N/A              COUNTRY CODE:  N/A
MMSI, SHIP CALL SIGN, OR AIRCRAFT REGISTRATION:  N/A

                            SEARCH RESULTS
LATITUDE LONGITUDE FIRST TCA   DUR FREQ SWP SITE/BEACON ID
62 00.3N 005 15.1E 02 1057 SEP 0.1  406 UNK A068A29C34D34D1

                       DETAIL INFORMATION
BEACON ID:    A068A29C34D34D1       SITE ID:    16056

SITE CREATED:        02 1226 SEP 99 SITE CLOSED: N/A
FIRST TCA:           02 1057 SEP 99 LAST TCA:    02 1103 SEP 99
LAST DATA PROCESSED: 02 1759 SEP 99 PASSES:      2

REASON CLOSED:
MESSAGE DESTINATIONS: UKMCC, NMCC, CMCC


                     DETECTION TIME AND POSITIONS
SOL LATITUDE LONGITUDE DETECT TIME    SAT SOURCE
B   62 00.1N 005 17.2E 02 1057 SEP    C4  CMC
B   62 00.6N 005 05.5E 02 1103 SEP    C8  AUMCC

             BEACON NOT DETECTED ON FOLLOWING PASSES
DETECT TIME SAT SOURCE MISSPASS

                      NEXT PASS INFORMATION
SITE ID SOL  DETECT TIME  SAT SOURCE VISIBILITY
5C16056  C   02 1844 SEP  S4   AK2    HIGH
5C16056  C   02 2025 SEP  S4   AK2    HIGH


QQQQ
/LASSIT
/ENDMSG
```

4.2.3 Level Three: Alert Query Analyst Report

Level Three reports are designed for in-depth analysis. These reports provide all the data available at the USMCC for a particular Beacon activation or Site ID. Normally these reports will be used by analysts at the USMCC to investigate system anomalies, and may also be appropriate for Search and Rescue Case studies conducted by the Air Force, the Coast Guard or other responding agencies. Proper interpretation of the data provided in Level Three reports will require system documentation and some training and familiarization. Site files can be extremely large, so caution should be exercised before requesting this information over the printer. This information can also be provided on electronic media (e.g., diskette, FTP). The following is an example of a Level Three report.

[TBD]

4.3 **406 Beacon Registration** (SIT 952)

This message provides 406 MHz beacon registration information to RCCs. An example is provided below.

```
/42254 00000/3660/05 045 2210
/952/366A
/
BEACON ID: ADCD0 21C38 C1C01

*************  USMCC REGISTRATION DATABASE INFORMATION  ************

OWNER: BUD'S BOAT RENTAL, LLC
       PO DRAWER F                    TEL 1: HOME 9855342244
       VENICE                  LA     TEL 2: WORK 9855342394
       70091     USA                  TEL 3:
                                      TEL 4:
       EMAIL:

CONTACTS: GARY SERCOVICH                JOYCE L YOUNG
     TEL 1: HOME 5043923576            TEL 1: HOME 9855349383
     TEL 2: WORK 9855342394            TEL 2: WORK 9855342394
     TEL 3:                            TEL 3:
     TEL 4:                            TEL 4:

VESSEL NAME: MISS ROBBIE
TYPE: POWER CREWBOAT                   LENGTH OVERALL (FT):    90
COLOR: WHT/BLCK HULL                   CAPACITY:    49
RADIO CALL SIGN: WYZ7820               REGISTRATION NO: 541398
RADIO EQP: VHF,MF                      INMARSAT NUMBER:
CELLULAR NUMBER:

NUMBER OF LIFE BOATS:     0            NUMBER OF LIFE RAFTS:     0

HOME PORT PRIMARY SRR: CGD08           SECONDARY SRR:
HOME PORT: (NO DATA PROVIDED)           VENICE                      LA

MANUFACTURER: ACR                      MODEL NUMBER: RLB-27
ACTIVATION TYPE: CAT1 (MANUAL AND AUTOMATIC)

BEACON CONTAINS SVDR:  NO

DATE FIRST REGISTERED: 14 DEC 1998     DATE DECAL EXPIRES: 16 NOV 2006
DATE LAST UPDATED:  30 NOV 2004

REMARKS:



SPECIAL STATUS:                        SPECIAL STATUS DATE:
SPECIAL STATUS INFO:



QQQQ
/LASSIT
/ENDMSG
```

4.4 **Beacon-LUT Mutual Visibility Schedule** (SIT 953)

This message is used to transmit a list of passes over a specified beacon, a point, or active site that will have mutual visibility with a US LUT.

```
/58224 00000/3660/99 245 1828
/953/366X
/
NEXT TIME SIGNAL SHOULD BE DETECTED FOR POSITION 33 00.0N,074 00.0W
STARTING AT 02 1818 SEP FOR 12 HOURS FOR FREQUENCY 121,243,406

DETECT FREQ     DETECT TIME SAT SOURCE VISIBILITY
121,243         01 2020 SEP  S3   PR1    HIGH
121,243,406     02 0303 SEP  S4   PR1    HIGH
121,243,406     02 0435 SEP  S6   PR1    HIGH
121,406         02 0623 SEP  C8   PR1    HIGH
121,243,406     02 0625 SEP  S7   PR1    HIGH
121,243         02 0710 SEP  S3   PR2    LOW
121,243,406     02 0715 SEP  S4   TX2    HIGH
121,243,406     02 0900 SEP  S7   PR2    HIGH

QQQQ
/LASSIT
/ENDMSG
```

Appendix 1

Alert and Support Message Definitions

The fields and terms used in alert and support messages transmitted by the USMCC are defined in this Appendix. The term "N/A" can mean either that the information is not applicable or that the information is not available. The fields used in the Message Administration Block are identified below. These fields are not specifically labeled in the alert messages.

Field	Definition
Message Number	The sequential message number assigned by the USMCC. This field contains two numbers; the current message number and the original message number if the message is re-transmitted.
Reporting MCC	The reporting MCC, always the USMCC or 3660.
Message Transmit Time	The message transmit time from the USMCC. The format is YY DDD HHMM where YY is the year, DDD is the day of the year and HHMM are the hours and minutes.
SIT	The Subject Indicator Type (SIT) of the alert or support message (complete list provided in Section 2).
SIT Destination	The destination of the alert message. A complete list can be obtained from the USMCC.

The fields for alert messages [contained in the Alert Data Block, Beacon Decode Data Block, Beacon Registration Data Block, Support Data Block and the Incident Feedback Report] are defined below. The first line of the definition column indicates the section of the message where the term is found, and in what type of messages it is found.

Term	Definition
406 REGISTRATION DATA USED TO RESOLVE INCIDENT	**Incident Feedback Report** **All 406 MHz Alerts** Was 406 registration data provided by the USMCC used to resolve the incident. *Feedback on this field required only for non-distress and distress cases.*
ACTIVATION TYPE	**Beacon Registration Data Block** **All 406 MHz Beacons** Activation method of a 406 MHz beacon, this information is decoded from the 15 hexadecimal beacon ID. CAT1 means that the beacon could be activated either manually or automatically, CAT2 means that the beacon can only be activated manually.
ACTUAL LOCATION	**Incident Feedback Report** **All Alerts** The actual location of the beacon as determined by the SAR forces. *Feedback on this field required only for non-distress and distress cases.*

Term	Definition
AIRCRAFT MANUFACTURER/ MODEL	**Beacon Registration Data Block** **All 406 MHz ELTs** Aircraft manufacturer/model as provided by the owner/operator.
AIRCRAFT USE	**Beacon Registration Data Block** **All 406 MHz ELTs** The type of aircraft. Aircraft can be categorized as general, commercial or an air carrier.
AIRPORT	**Beacon Registration Data Block** **All 406 MHz ELTs** Home airport for the aircraft to which this ELT is registered.
AIRPORT PRIMARY SRR	**Beacon Registration Data Block** **All 406 MHz ELTs** The primary SRR (RCC, MCC or SPOC) responsible for the aircraft's air port.
AIRPORT SECONDARY SRR	**Beacon Registration Data Block** **All 406 MHz ELTs** The secondary SRR (RCC, MCC or SPOC) responsible for the aircraft's air port.
ALERT MESSAGES FOR THIS BEACON PREVIOUSLY SENT TO	**Support Data Block** **All Alerts** This is a list of all destinations that have received messages from the USMCC for this alert site.
~~**ALTERNATE AIRPORT**~~	~~**Beacon Registration Data Block** **All 406 MHz ELTs**~~ ~~Alternate home base or airport, as provided by the owner/operator, for the aircraft to which this ELT is registered.~~
~~**ALTERNATE PORT**~~	~~**Beacon Registration Data Block** **All 406 MHz EPIRBs**~~ ~~Alternate home port, as provided by the owner/operator, for the vessel to which this EPIRB is registered.~~
BEACON CONTAINS SVDR	**Beacon Registration Data Block** **All 406 MHz EPIRBs** Indicates whether the beacon contains a Simple Voyage Data Recorder. Values are: NO YES. RECOVER IF POSSIBLE

Term	Definition
BEACON ID	**Alert Data Block** **All 406 MHz Beacons** The 15 character hexadecimal identifier of a 406 MHz beacon. The 15 characters represent bits 26 to 85 of a complete 406 MHz beacon message (bits 25 to 144 or bits 25 to 112). For User Protocol beacons the identification of the beacon is stored in these bits. For Location Protocol Beacons the identification and position information is stored in these bits. Note that for RCC messages the bits that contain the position information is set to default values. This will allow the 15 characters hexadecimal identifier to stay the same even if the encoded position changes.
BEACON MANUFACTURER	**Incident Feedback Report** **All Alerts** The beacon manufacturer if a 121.5/243 MHz signal is from a real beacon or if the information is not provided on 406 MHz alert. *Feedback on this field required only for non-distress and distress cases.*
BEACON MODEL	**Incident Feedback Report** **All Alerts** The beacon manufacturer's model if a 121.5/243 MHz signal is from a real beacon or if the information is not provided on 406 MHz alert. *Feedback on this field required only for non-distress and distress cases.*
BEACON TYPE	**Incident Feedback Report** **All Alerts** The beacon type (EPIRB, ELT or PLB) if a 121.5/243 MHz signal is from a real beacon or if the information is not provided on 406 MHz alerts. *Feedback on this field required only for non-distress and distress cases.*

Term	Definition
BEACON TYPE	**Beacon Decode Data Block** **All 406 MHz Beacons** The beacon type decoded from the digital message by the USMCC. Valid types are provided below. Location protocol beacon are described as standard ("(STANDARD)" or "(STD)") or national ("(NATIONAL)") ELT AVIATION USE ELT SERIAL AVIATION ELT SERIAL A/C OPERATOR ELT 24 BIT ADDRESS (STD) ELT SERIAL (STANDARD) ELT A/C OPERATOR (STD) ELT SERIAL (NATIONAL) ELT SERIAL A/C 24BIT ADDRESS EPIRB MARITIME USER EPIRB MMSI (STANDARD) EPIRB RADIO CALL SIGN EPIRB SERIAL CATEGORY I EPIRB SERIAL CATEGORY II EPIRB SERIAL (NATIONAL) EPIRB SERIAL (STANDARD) PLB SERIALNATIONAL USER PLB SERIAL (STANDARD) PLB SERIAL (NATIONAL) SHIP SECURITY SPARE SERIAL (NATIONAL) Spare TEST (NATIONAL) TEST SERIAL (STANDARD)
BUFFER	**Alert Data Block** **All Alerts** **Support Data Block** Identifies another SRR (besides the primary) if it is within 50 kilometers of the alert position. Only one buffer SRR (the closest one) is provided on alert messages.
CAPACITY	**Beacon Registration Data Block** **All 406 MHz ELTs/EPIRBs** The capacity of the vessel/aircraft, as provided by the owner/operator, for the vessel/aircraft to which this beacon is registered.
CELLULAR NUMBER	**Beacon Registration Data Block** **EPIRBs** Cellular number for the vessel on which the beacon operates.

Term	Definition
CLOSED	**Alert Data Block** **All Alerts** Indicates if the USMCC site is closed or not, and for a closed site, whether the site closed due to missed passes, time or operator action. For more information about site closure, see the descriptions of SIT 158 (for 121/243 MHz sites) and SIT 166 (for 406 MHz sites).
COLOR	**Beacon Registration Data Block** **All 406 MHz ELTs/EPIRBs** The color of the vessel/aircraft, as provided by the owner/operator, for the vessel/aircraft to which this beacon is registered.
CONTACTS	**Beacon Registration Data Block** **All 406 MHz Beacons** Emergency points of contact. Up to 4 primary (left hand column) and 4 alternate (right hand column) telephone numbers are provided. See field "TEL #".
COSPAS-SARSAT ONLY NOTIFICATION	**Incident Feedback Report** **All Alerts** Was the alert generated by the Cospas-Sarsat System [and relayed by the USMCC] the only notification of the incident. *Feedback on this field required only for non-distress and distress cases.*
COSPAS-SARSAT FIRST NOTIFICATION	**Incident Feedback Report** **All Alerts** Was the alert generated by the Cospas-Sarsat System [and relayed by the USMCC] the first notification of the incident *Feedback on this field required only for non-distress and distress cases.*
COSPAS-SARSAT USED FOR LOCATION ONLY	**Incident Feedback Report** **All Alerts** Was the alert generated by the Cospas-Sarsat System [and relayed by the USMCC] used only for location. If the answer is yes it implies that there was other notification of the incident and the USMCC provided position was used to corroborate the distress. In cases where Cospas-Sarsat was the first or only notification, the answer would be no (its implied that if Cospas-Sarsat provided the only or t he first alert, the position provided was used). *Feedback on this field required only for non-distress and distress cases.*
COUNTRY	**Beacon Decode Data Block** **All 406 MHz Beacons** The country, nationality, state or territory associated with the MID Code in the Beacon Decode Data Block. The MID codes are assigned by the International Telecommunications Union (ITU).

Term	Definition
CRAFT ID	**Beacon Decode Data Block** **All 406 MHz Beacons** The decoded identifier of the vessel/aircraft. This information is decoded by the USMCC and is derived from the beacon identifier. The identifier can be a radio call sign, a MMSI number, an aircraft tail number or registration marking, an aircraft 24 bit address or an aircraft operator designator.
DATE FIRST REGISTERED	**Beacon Registration Data Block** **All 406 MHz Beacons** The date that this beacon was first registered.
DATE LAST UPDATED	**Beacon Registration Data Block** **All 406 MHz Beacons** The date that this registration information was last updated.
DATE DECAL EXPIRES	**Beacon Registration Data Block** **All 406 MHz Beacons** The date that the registration information for this beacon expires. The USMCC issues a decal with every new beacon registration or confirmation. The decal contains an expiration date of two years from the date of issue.
DATE FIRST REGISTERED	**Beacon Registration Data Block** **All 406 MHz Beacons** The date that this beacon was first entered into the USMCC registration database.
DEPLOYABLE SURVIVAL CRAFT DESCRIPTION	**Beacon Registration Data Block** **All 406 MHz ELTs** Description of the deployable survival equipment on the aircraft.
DETECT TIME	**Alert Data Block** **All Alerts** For solutions with Doppler location, the Time of Closest Approach (TCA) of the satellite to the signal source. For 406 MHz solutions without Doppler location, the time that the last data burst was received by the LUT. **Support Data Block** **All Alerts** For solutions with Doppler location, the Time of Closest Approach (TCA) of the satellite to the signal source. For 406 MHz solutions without Doppler location, the time that the last data burst was received by the LUT. For NEXT TIME SIGNAL SHOULD BE DETECTED information the detect time corresponds to the time of the closest approach of the satellite to the beacon or signal source.
DURATION	**Alert Data Block** **All Alerts** The number of hours that this beacon has been active. It is calculated from the earliest and most recent times that the signal was detected. This information is only provided on notification of ambiguity resolution messages, composite update messages and on certain missed pass reports.

Term	Definition
EMAIL	**Beacon Registration Data Block** **All 406 MHz Alerts** Email address for the beacon owner.
FIXED SURVIVAL CRAFT DESCRIPTION	**Beacon Registration Data Block** **All 406 MHz ELTs** Description of fixed survival equipment on the aircraft.
FREQ	**Alert Data Block** **All 121.5/243 MHz Alerts** The frequency of a 121.5/243 MHz signal presented in MHz. Beacons or signals detected at both the 121.5 and 243 frequencies are listed with the 121.5 MHz frequency and identified with a "D" preceding the frequency.
HOME PORT	**Beacon Registration Data Block** **All 406 MHz EPIRBs** Home port for the vessel to which this EPIRB is registered.
HOME PORT PRIMARY SRR	**Beacon Registration Data Block** **All 406 MHz EPIRBs** The primary SRR (RCC, MCC or SPOC) responsible for the vessel's home port.
HOME PORT SECONDARY SRR	**Beacon Registration Data Block** **All 406 MHz EPIRBs** The secondary SRR (RCC, MCC or SPOC) responsible for the vessel's home port.
HOMING	**Beacon Decode Data Block** **All 406 MHz Beacons** The type of homing provided in this beacon. Valid options are 121.5 MHz, SAR Transponder (SART), Other or None.
HOURS OF RESOURCE ALLOCATED	**Incident Feedback Report** **All Alerts** Hours of assets utilized in resolving the incident. Provide hours of all assets used. Assets are categorized as boat, cutter, helicopter, fixed wing, Civil Air Patrol or other. *Feedback on this field required only for non-distress and distress cases.*
HOW DETERMINED	**Incident Feedback Report** **All Alerts** How the actual location of the beacon as determined by the SAR forces. Valid choices are Loran, Omega, VOR, VOR-DME, TACAN, SATNAV, GPS, Chart or other. *Feedback on this field required only for non-distress and distress cases.*

Term	Definition
HOW ACTIVATED	**Incident Feedback Report** **All Alerts** How the beacon was activated. Valid choices are automatically, manually, due to a user-error, due to a beacon problem or due to a bracket failure (for CAT 1 beacons). User-error can be attributed to accidental or inadvertent activations, incorrect installation or handling or other reasons that are the operators fault. Beacon problems are problems with the beacon electronics, hardware, batteries or casing. Bracket failures are failures of the release mechanism or the restraining mechanism. *Feedback on this field required only for non-distress and distress cases.*
IMAGE SITE	**Alert Data Block** **All 121.5/243 MHz Beacons** The term is used when the ambiguity for a 121/5/243 MHz site has been resolved. The image site is listed to allow RCCs to identify if a previous alert they had received is now determined to be an image position.
INCIDENT / MISSION / CASE NUMBER	**Incident Feedback Report** **All Alerts** The incident, mission or case number assigned by the RCC. *Feedback on this field required regardless of outcome*
INCIDENT / MISSION / CASE START TIME	**Incident Feedback Report** **All Alerts** The incident, mission or case start time in GMT. *Feedback on this field required regardless of outcome*
INMARSAT NUMBER	**Beacon Registration Data Block** **All 406 MHz EPIRBs** Inmarsat contact number for the vessel to which this EPIRB is registered.
LATITUDE	**Alert Data Block** **All Alerts** **Support Data Block** The latitude position of the alert provided in degrees and minutes. The position can be calculated by LUTs or encoded in the 406 MHz digital message.
LEASING AGENT	**Beacon Registration Data Block** **All 406 MHz ELTs** The leasing agent of the aircraft to which this ELT is registered.
LENGTH OVERALL (FT)	**Beacon Registration Data Block** **All 406 MHz EPIRBs, ELTs** The length of the vessel or aircraft to which the beacon is registered.
LONGITUDE	**Alert Data Block** **All Alerts** **Support Data Block** The longitude position of the alert provided in degrees and minutes. The position can be calculated by LUTs or encoded in the 406 MHz digital message.

Term	Definition
MANUFACTURER	**Beacon Decode Data Block** **All 406 MHz Beacons** The manufacturer of the beacon as decoded from the beacon identifier. This information is only available on US serialized beacons. **Beacon Registration Data Block** **All 406 MHz Beacons** The manufacturer of the beacon as provided by the owner/operator of the beacon.
MODEL	**Beacon Decode Data Block** **All 406 MHz Beacons** The model of the beacon as decoded from the beacon identifier. This information is only available on US serialized beacons.
MODEL NUMBER	**Beacon Registration Data Block** **All 406 MHz Beacons** The model number of the beacon as provided by the owner/operator of the beacon.
MP	**Alert Data Block** **All Alerts** The number of missed detections for this beacon or site. The number in this column indicates how many missed detections exist for the current message.
NEXT TIME SIGNAL SHOULD BE DETECTED	**Support Data Block** **All 406 MHz Beacons** The next time the beacon should be detected. The "SOL" (solution), "DETECT TIME", "SAT" (satellite), "SOURCE" (US LUT) and the "VISIBILITY" [between the satellite, LUT and beacon] are provided. For composite sites the "SOL" column will indicate a "C", otherwise the "A" or "B" solution is identified. For "HIGH" visibility passes, a missed pass report will be transmitted to the RCC. For "LOW" visibility passes no missed pass report is generated. **Support Data Block** **All 121.5/243 MHz Beacons** The next time the beacon should be detected. The "SITE ID" (site identifier), "SOL" (solution), "DETECT TIME", "SAT" (satellite), "SOURCE" (US LUT) and the "VISIBILITY" [between the satellite, LUT and beacon] are provided. The site identifier corresponding to the composite or first alert site is indicated under "SITE ID". For composite sites the "SOL" column will indicate a "C", otherwise the "A" or "B" solution is identified. For "HIGH" visibility passes, a missed pass report will be transmitted to the RCC. For "LOW" visibility passes no missed pass report is generated.
NUMBER OF LIFE BOATS	**Beacon Registration Data Block** **All 406 MHz EPRIBs** The number of life boats on board the vessel.
NUMBER OF LIFE RAFTS	**Beacon Registration Data Block** **All 406 MHz EPRIBs** The number of life rafts on board the vessel.

Term	Definition
OUTCOME (CEASED / DISTRESS / NON-DISTRESS)	**Incident Feedback Report** **All Alerts** The outcome of the incident. Ceased if the source of the signal was not found. Non-distress if an accidental activation or non-distress situation confirmed. Distress if activated in a distress situation. *Feedback on this field required regardless of outcome*
OWNER	**Beacon Registration Data Block** **All 406 MHz Beacons** The owner of the 406 MHz beacon. This section of the message also contains the owner's mailing address, telephone numbers and email address.
PASSES	**Alert Data Block** **All Alerts** The number of satellite passes over a beacon or signal source. This information is only provided for composite alerts. Each pass is defined as a pass of a satellite over an active beacon or signal source. For data from geostationary satellites a pass is defined as data received from a unique geostationary satellite.
PREVIOUS PASS INFORMATION	**Support Data Block** **All 406 MHz Beacons** The previous satellite passes for this beacon up to 4 passes. In cases of position conflict alerts there is no limit to how many previous passes are sent. The "PROB" (probability), "SOL" (solution), "LATITUDE" , "LONGITUDE", "DETECT TIME", "SAT" (satellite), and "SOURCE" (US LUT) are provided. For composite sites the "SOL" column will indicate a "C", otherwise the "A" or "B" solution is identified. **Support Data Block** **All 121.5/243 MHz Beacons** The previous satellite passes for this signal source. The "SITE ID" (site identifier), "LATITUDE", "LONGITUDE", "DETECT TIME", "FREQ" (frequency), "SWP" (sweep), "SAT" (satellite), "SOURCE" (US LUT) and the "SRR/BUFFER" are provided. The site identifier corresponding to the composite or first alert site is indicated under "SITE ID".
PROB	**Alert Data Block** **All 406 MHz Alerts** **Support Data Block** The probability that the "A" solution is correct. Tests have shown that 95% of the time the solution identified as the "A" is the real position of the beacon. The probability is not provided for positions derived from encoded data (i.e., GPS positions contained in the beacon message). Valid ranges are 01 to 99.
RADIO EQP	**Beacon Registration Data Block** **All 406 MHz Alerts** The type of radio equipment on board vessel/aircraft or person. May include Inmarsat number, VHF_FM, VHF_AM, HF, MF, or Other.

Term	Definition
RADIO CALL SIGN	**Beacon Registration Data Block** **All 406 MHz EPIRBs** The radio call sign of the vessel. This may be a foreign radio call sign for foreign flagged vessel.
REGISTRATION NO	**Beacon Registration Data Block** **All 406 MHz EPIRBs** The vessel's documentation or registration number.
REMARKS	**Beacon Registration Data Block** **All 406 MHz Alerts** Additional remarks or comments provided by the owner/operator. This section may contain information on the new owner of the beacon.
RESCUED	**Incident Feedback Report** **All Alerts** The number of people rescued during the incident. If a 121.5 site is created for a 406 homer report the saves under the 406 feedback. *Feedback on this field required only for distress cases.*
SAT	**Alert Data Block** **All Alerts** **Support Data Block** The identifier of the Cospas-Sarsat satellite providing the alert: "S" - SARSAT (USA) low-earth orbiting satellite, "C" - COSPAS (Russian) low-earth orbiting satellite, "G" - GOES (USA) geostationary satellite, "M" - MSG (European) geostationary satellite and "I" - INSAT (Indian) satellite.
SERIAL NUM	**Beacon Decode Data Block** **406 MHz Beacons** The serial number of serialized 406 MHz beacons. For US beacons the manufacturer, model and serial number are derived from this larger serial number. For US serialized beacons this field will contain the sequence number assigned by the beacon manufacturer. For foreign beacons the number will contain the value of all 44 identification bits of the beacon message.
24 BIT ADDR	**Beacon Decode Data Block** **some 406 MHz ELTs** The 24 bit address for User 24 bit Aircraft Operator and Location Protocol ELT 24 bit address 406 MHz beacons. Only present on messages for beacons with a 24 bit address, in which it is in place of SERIAL NUM. The 24 bit address is present as 6 hexadecimal digits and has a prefix of "HEX=".
PROGRAM	**Beacon Decode Data Block** **some 406 MHz Beacons** The name of the special program associated with the beacon id.

Term	Definition
PROGRAM BLOCK REGISTRATION ID	**Beacon Decode Data Block** **some 406 MHz Beacons** The 15 hexadecimal id that is linked to Beacon Registration Data for a special program.
SITE ID	**Alert Data Block** **All 121.5/243 MHz Alerts** **Support Data Block** The USMCC assigned site identifier. Each first alert is identified by two site identifiers under the "SITE ID" column. The first number of the "SITE ID" is the frequency at which the signal is detected. A "1" means that it was detected as a 121.5 MHz signal, a "2" means that it was detected as a 243 MHz signal and a "3" means it was detected as a dual 121.5/243 MHz signal. The next letter identifies whether the position is the "A" or the "B" position. The remaining five digits are unique, sequential identifiers assigned by the USMCC. **Alert Data Block** **All 406 MHz Alerts** **Support Data Block** The USMCC assigned site identifier consisting of unique five digits.
SITE ID OF OTHER FEEDBACK REPORT FOR SAME INCIDENT	**Incident Feedback Report** **All 121.5/243 MHz Alerts** A 121.5/243 MHz signal may result in multiple USMCC sites, in which case detailed feedback should only be provided for one site. For the other related sites, this field (SITE ID OF OTHER FEEDBACK REPORT FOR SAME INCIDENT) should be set to the Site Id for which detailed feedback was provided. *Feedback on this field required for all cases.*
SOL	**Alert Data Block** **All Alerts** **Support Data Block** The solution associated with the latitude and longitude provided. "A" solution is identified as the position with a higher probability of being correct. "B" solution is identified as the position with a lower probability of being correct. A "C" means that the position is a composite solution and no ambiguity exists. An "E" is a position encoded in the 406 MHz beacon message (i.e., a position obtained from GPS and inserted into the 406 MHz beacon burst).

Term	Definition
SPECIAL STATUS	**Beacon Registration Data Block** **All 406 MHz Beacons** Special status for beacon. Valid values are: LOST, STOLEN, SOLD, REPLACED, DESTROYED, OUTOFSERVICE
SPECIAL STATUS DATE	**Beacon Registration Data Block** **All 406 MHz Beacons** The date on which the special status became effective.
SPECIAL STATUS INFO	**Beacon Registration Data Block** **All 406 MHz Beacons** Special status information
SPECIFIC USAGE	**Beacon Registration Data Block** **All 406 MHz PLBs** Specific usage of beacon.
SRR	**Alert Data Block** **All Alerts** **Support Data Block** The Search and Rescue Region associated with the given position. For US RCCs the SRR is associated with a given Area of Responsibility for Coast Guard, Air Force and Joint RCCs. For foreign SRRs the position is associated with either the MCC service area or a national SAR boundary for SAR Points of Contact. The complete list can be obtained from the USMCC.
STATE OR GENERAL LOCATION	**Incident Feedback Report** **All Alerts** The two letter state identifier for the position of the actual alert *Feedback on this field required only for non-distress and distress cases.*
SWP	**Alert Data Block** **All 121.5/243 MHz Alerts** **Support Data Block** The presence of sweep (audio modulation) for 121.5/243 MHz signals, as determined by the USMCC: "YES" indicates that the audio modulation was detected and that the signal source is likely a real beacon. "UNK" indicates that not enough information exists to make the sweep determination or that the signal may be interferer.

Term	Definition
THIS ALERT MESSAGE IS BEING SENT TO	**Support Data Block** **All Alerts** This list identifies all destinations that are receiving the current alert message from the USMCC.
TAIL NUMBER	**Beacon Registration Data Block** **All 406 MHz ELTs** The aircraft's tail number or registration number provided by the owner/operator.
TEL #:	**Beacon Registration Data Block** **All 406 MHz Beacons** Telephone number type and telephone number for the owner of the beacon, primary contact or alternate contact. "#" is a sequential number (1 to 4) for this telephone number. The telephone number type is ("HOME", "WORK", "CELL", "FAX " or "OTHR"). For example, "TEL 1: CELL" means that the first number is a cell phone.
TIME RESCUE FORCES ARRIVED	**Incident Feedback Report** **All Alerts** The time rescue forces arrived on scene in GMT. *Feedback on this field required only for non-distress and distress cases.*
TIME ALERT DETERMINED TO A FALSE ALARM OR RESOURCE LAUNCHED	**Incident Feedback Report** **All Alerts** The time (in GMT) the incident is determined to be a false alarm or the decision was made to launch assets. *Feedback on this field required only for non-distress and distress cases.*
TOTAL INVOLVED	**Incident Feedback Report** **All Alerts** The total number of people involved during the incident (excluding the rescue personnel). If a 121.5 site is created of a 406 homer report the total involved under the 406 feedback. *Feedback on this field required only for distress cases.*
TYPE	**Beacon Registration Data Block** **All 406 MHz ELTs** The type of aircraft. Aircraft can be categorized as general, commercial or an air carrier **Beacon Registration Data Block** **All 406 MHz EPIRBs** The type of vessel. Sailing vessels are categorized as sail (sloop, yawl, schooner or other) or power (fishing, tug/tow, cargo, tanker, cabin cruiser or other).
USMCC PROCESSING TIME	**Support Data Block** **All Alerts** The time that the alert in the current message was processed at the USMCC. This time may be different from the time the RCC receives the alert or the time the USMCC actually transmits the alert.

Term	Definition
VEHICLE TYPE	**Beacon Registration Data Block** **All 406 MHz PLBs** The type of vehicle on which the PLB is being operated.
VESSEL / AIRCRAFT TYPE AND NAME	**Incident Feedback Report** **All Alerts** The name of the vessel or aircraft as determined by the RCC. *Feedback on this field required only for non-distress and distress cases.*
VESSEL NAME	**Beacon Registration Data Block** **All 406 MHz EPIRBs** The name of the vessel on which the beacon operates.
VISIBILITY	**Support Data Block** **All Alerts** The mutual visibility between the satellite, LUT and beacon. For "HIGH" visibility passes, a missed pass report will be transmitted to the RCC. For "LOW" visibility passes no missed pass report is generated.
WHY ACTIVATED	**Incident Feedback Report** **All Alerts** Why the beacon was activated. Valid choices are distress, test or other. This field is only completed for when beacons are manually activated. *Feedback on this field required for non-distress and distress cases.*

The fields for support messages are defined below. As these messages do not have a specific format, information on the section of the message is not provided.

Term	Definition
ACTIVATION TYPE	**406 Beacon Registration for EPRIBs** Activation method of a 406 MHz beacon, this information is decoded from the 15 hexadecimal beacon ID. CAT1 means that the beacon could be activated either manually or automatically, CAT2 means that the beacon can only be activated manually.
AIRCRAFT USE	**406 Beacon Registration for ELTs** The type of aircraft. Aircraft can be categorized as general, commercial or an air carrier.
AIRCRAFT MANUFACTURER/ MODEL	**406 Beacon Registration for ELTs** Aircraft manufacturer/model as provided by owner/operator.
AIRCRAFT REGISTRATION	**Alert Query Report** Aircraft registration used for the alert query. Can include the 24-bit address, aircraft operator designation, and aircraft registration (or tail number)
AIRPORT	**406 Beacon Registration for ELTs** Home base or airport, as provided by the owner/operator, for the aircraft to which the ELT is registered.
BEACON ID	**Alert Query Report** **406 Beacon Registration** The 15 character hexadecimal identifier of a 406 MHz beacon used in the alert query. The 15 characters represent bits 26 to 85 of a complete 406 MHz beacon message (bits 25 to 144 or bits 25 to 112). For User Protocol beacons the identification of the beacon is stored in these bits. For Location Protocol Beacons the identification and position information is stored in these bits. Note that for RCC messages the bits that contain the position information is set to default values. This will allow the 15 characters hexadecimal identifier to stay the same even if the encoded position changes.
CAPACITY	**406 Beacon Registration for EPIRBs/ELTs** The capacity of the vessel/aircraft, as provided by the owner/operator, for the vessel/aircraft to which this beacon is registered
CELLULAR NUMBER	**406 Beacon Registration** Cellular number for the owner as provided by the owner/operator

Term	Definition
CENTER POSITION	**Alert Query Report** The position (latitude and longitude) used to conduct an alert query based on a center point and radius.
COLOR	**406 Beacon Registration for EPIRBs/ELTs** The color of the vessel/aircraft, as provided by the owner/operator, for the vessel/aircraft to which this beacon is registered
CONTACTS	**406 Beacon Registration** Emergency points of contact as provided by the owner/operator
COUNTRY CODE	**Alert Query Report** The International Telecommunications Union (ITU) Maritime Identification Digit for the country, nationality, state or territory associated with this beacon. A complete list is provided in the Cospas-Sarsat document C/S A.001 or in Appendix 43 of the ITU Radio Regulations. One county may have more than one country code assigned to it.
DATE DECAL EXPIRES	**406 Beacon Registration** The date that the registration information for this beacon expires. The USMCC issues a decal with every new beacon registration or confirmation. The decal contains an expiration date of two years from the date of issue.
DATE LAST UPDATED	**406 Beacon Registration** The date that this registration information was last updated.
DATE FIRST REGISTERED	**406 Beacon Registration** The date that this beacon was first entered into the USMCC registration database
DETECT TIME	**Alert Query Report** The detect time corresponds to the Time of Closest Approach (TCA) of the satellite to the beacon or signal source. For 406 MHz unlocated alerts the time corresponds to the time of the last data burst received by the LUT. For NEXT TIME SIGNAL SHOULD BE DETECTED information the detect time corresponds to the time of the closest approach of the satellite to the beacon or signal source. **Beacon-LUT Mutual Visibility Schedule** The next time of the closest approach of the satellite to the beacon or signal source. Calculated based on the input position.

Term	Definition
DETECT FREQ	**Beacon-LUT Mutual Visibility Schedule** The frequencies that can be detected by the corresponding satellite.
DUR	**Alert Query Report** The duration (in hours) that the signal has been active. Calculated from the first time to the last time the signal was detected.
EAST BOUNDARY	**Alert Query Report** The eastern boundary of an alert query based on a search rectangle.
FIRST TCA	**Alert Query Report** The first time the signal or beacon was detected. The detect time corresponds to the Time of Closest Approach (TCA) of the satellite to the beacon or signal source. For 406 MHz unlocated alerts the time corresponds to the time of the last data burst received by the LUT.
FREQ	**Alert Query Report** The frequency of a 121.5/243 MHz signal presented in MHz. Beacons or signals detected at both the 121.5 and 243 frequencies are listed with the 121.5 MHz frequency and identified with a "D" preceding the frequency.
HOME PORT	**406 Beacon Registration for EPRIBs** Home port, as provided by the owner/operator, for the vessel to which this EPIRB is registered.
INMARSAT NUMBER	**406 Beacon Registration for EPIRBs** Inmarsat contact number, as provided by the owner/operator, for the vessel to which the EPIRB is registered.
LAST TCA	**Alert Query Report** The last time the signal or beacon was detected. The detect time corresponds to the Time of Closest Approach (TCA) of the satellite to the beacon or signal source. For 406 MHz unlocated alerts the time corresponds to the time of the last data burst received by the LUT.
LAST DATA PROCESSED	**Alert Query Report** The time (in DD HHMM MON YY format where DD is day of month, HH is the hour in GMT, MM is minutes, MON is month and YY is year) when the USMCC last processed data for this site. This time is different from the last TCA as additional data may have been received at the USMCC

Term	Definition
LATITUDE	**Alert Query Report** The latitude position of the alert provided in degrees and minutes. The position can be either calculated by LUTs or by extracting it from the digital message (for 406 MHz beacons with GPS input)
LEASING AGENT	**406 Beacon Registration for ELTs** The leasing agent of the aircraft, as provided by the owner/operator, for the aircraft to which this ELT is registered.
LENGTH OVERALL (FT)	**406 Beacon Registration for EPIRBs** The length of the vessel to which the EPIRB is registered
LONGITUDE	**Alert Query Report** The longitude position of the alert provided in degrees and minutes. The position can be either calculated by LUTs or by extracting it from the digital message (for 406 MHz beacons with GPS input)
MANUFACTURER	**406 Beacon Registration** The manufacturer of the beacon as provided by the owner/operator of the beacon.
MESSAGE DESTINATIONS	**Alert Query Report** This is a list of all destinations, either other RCCs, SPOCs or MCCs that have received alerts for this site or beacon.
MMSI	**Alert Query Report** The Mobile Maritime Service Identity (MMSI) used for the alert query. The MMSI consists of the three digit country code (or MID code) and the trailing six digits ship station identity in accordance with Appendix 43 of ITU Radio Regulations.
MODEL NUMBER	406 Beacon Registration The model number of the beacon as provided by the owner/operator of the beacon.
NORTH BOUNDARY	**Alert Query Report** The northern boundary of an alert query based on a search rectangle.
OWNER	**406 Beacon Registration** The owner of a 406 MHz beacon. This field also contains the owner's mailing address.
RADIO CALL SIGN	**406 Beacon Registration for EPIRBs** The vessel's radio call sign as provided by the owner/operator. This may be a foreign radio call sign for foreign flagged vessel.

Term	Definition
RADIO EQP	**406 Beacon Registration** The type of radio equipment on board vessel/aircraft or person. May include Inmarsat number, VHF_FM, VHF_AM, HF, MF, or Other
RADIUS	**Alert Query Report** The radius (in kilometers) used to conduct an alert query based on a center point and radius.
REASON CLOSED	**Alert Query Report** The reason the site was closed. It can either be closed due to a configurable number of missed satellite detections, or a configurable time period.
REGISTRATION NO	**406 Beacon Registration for EPIRBs** The vessel's documentation or registration number provided by the owner/operator.
REMARKS	**406 Beacon Registration** Additional remarks or comments provided by the owner/operator. This section may contain information on new owners of the beacon.
REPORT END	**Alert Query Report** Search end time of the alert query. The information is provided in DD HHMM MON YY format where DD is day of month, HH is the hour in GMT, MM is minutes, MON is month and YY is year.
REPORT START	**Alert Query Report** Search start time of the alert query. The information is provided in DD HHMM MON YY format where DD is day of month, HH is the hour in GMT, MM is minutes, MON is month and YY is year.
SAT	**Alert Query Report** The identifier of the Cospas-Sarsat satellite providing the alert. "S" indicates a SARSAT (USA) low-earth orbiting satellite, "C" indicates a COSPAS (Russian) low-earth orbiting satellite, and "G" indicates a GOES (USA) geostationary satellite. Consult with the USMCC to obtain the current list of operational satellites.
SEARCH FREQ	**Alert Query Report** Frequency of the signal or beacon included in the search. May contain more than one frequency.

Term	Definition
SHIP CALL SIGN	**Alert Query Report** The radio call sign used for the alert query. The radio call sign is an alphanumeric sequence (letters and digits) assigned to a particular vessel by the flag State administration.
SITE/BEACON ID	**Alert Query Report** See Site ID or Beacon ID.
SITE CREATED	**Alert Query Report** The time (in DD HHMM MON YY format where DD is day of month, HH is the hour in GMT, MM is minutes, MON is month and YY is year) when the site was first opened or created at the USMCC. This is approximately the time it was received at the USMCC.
SITE CLOSED	**Alert Query Report** The time (in DD HHMM MON YY format where DD is day of month, HH is the hour in GMT, MM is minutes, MON is month and YY is year) when the site was closed by the USMCC. The site may be closed due to missed satellite detections or an age-out time.
SITE ID	**Alert Query Report** The site ID if information was requested for a certain site. Additional information on site IDs is contained in the alert message definitions.
SOL	**Alert Query Report** The solution associated with the latitude and longitude provided. "A" solution is identified as the position with a higher probability of being correct. "B" solution is identified as the position with a lower probability of being correct. A "C" means that the position is a composite solution and no ambiguity exists. An "E" is a position encoded in the 406 MHz beacon message (i.e., a position obtained from GPS and inserted into the 406 MHz beacon burst).

Term	Definition
SOURCE	**Alert Query Report** The source of the alert data. Valid sources are US LUTs or foreign MCCs. **U.S. LUTs**: AK1 Alaska LUT 1 Fairbanks, Alaska AK2 Alaska LUT 2 Fairbanks, Alaska CA1 California LUT 1 Vandenburg AFB, California CA2 California LUT 2 Vandenburg AFB, California FL1 Florida LUT 1 Miami, Florida FL2 Florida LUT2 Miami Florida HI1 Hawaii LUT 1 Wahiawai, Hawaii HI2 Hawaii LUT 2 Wahiawai, Hawaii GSE GeoLut Support Equipment Suitland, Maryland GU1 Guam LUT 1 Anderson AFB, Guam GU2 Guam LUT 2 Anderson AFB, Guam LSE LeoLut Support Equipment Suitland, Maryland MD1 Maryland LUT 1 Suitland, Maryland MD2 Maryland LUT 2 Suitland, Maryland **Foreign MCCs**: ALMCC Algeria MCC Algiers ARMCC Argentina MCC Buenos Aires ASMCC South Africa MCC Cape Town AUMCC Australia MCC Canberra BRMCC Brazil MCC Brasilia CHMCC Chile MCC Santiago CMC Russian MCC Moscow CMCC Canada MCC Trenton CNMCC China MCC Beijing FMCC France MCC Toulouse HKMCC Hong Kong MCC Hong Kong IDMCC Indonesia MCC Jakarta INMCC India MCC Bangalore ITMCC Italy MCC Bari JAMCC Japan MCC Tokyo KOMCC Korea MCC Taejon NIMCC Nigeria MCC Garki, Abuja NMCC Norway MCC Bodoe PAMCC Pakistan MCC Lahore PEMCC Peru MCC Callao SAMCC Saudi Arabia MCC Jeddah SIMCC Singapore MCC Singapore SPMCC Spain MCC Maspalomas TAMCC Taiwan MCC Taipei THMCC Thailand MCC Bangkok UKMCC United Kingdom MCC Kinloss VNMCC Vietnam MCC Haiphong City
	Alert Query Report The southern boundary of an alert query based on a search rectangle.

Term	Definition
SWP	**Alert Query Report** The presence of sweep (audio modulation) for 121.5/243 MHz signals, as determined by the USMCC. "YES" indicates that the audio modulation was detected and that the signal source is likely a real beacon. "UNK" indicates that not enough information exists to make the sweep determination or that the signal may be interferer.
TAIL NUMBER	**406 Beacon Registration for ELTs** The aircraft's tail number or registration number (sometimes referred to as the "N" number) provided by the owner/operator.
TYPE	**406 Beacon Registration for EPIRBs** The type of vessel. Sailing vessels are categorized as sail (sloop, yawl, schooner or other) or power (fishing, tug/tow, cargo, tanker, cabin cruiser or other)
USE	**406 Beacon Registration for PLBs** The use of the personal locator beacon. The use can be for a land vehicle, hunting/fishing, hiking, boating, cross country skiing, or other.
VESSEL NAME	**406 Beacon Registration for EPIRBs** The name of the vessel provided by the owner/operator
VISIBILITY	**Alert Query Report** **Beacon-LUT Mutual Visibility Schedule** The mutual visibility between the satellite, LUT and beacon. For "HIGH" visibility passes, a missed pass report will be transmitted to the RCC. For "LOW" visibility passes no missed pass report is generated.
WEST BOUNDARY	**Alert Query Report** The western boundary of an alert query based on a search rectangle.

Appendix 2

Beacon Registration Data Block Formats

The format for registration data varies based on the type of beacon registered. EPIRB, ELT, and PLB registration forms, all have different formats as different types of information are being conveyed. An example of each of the data block formats is presented below.

- Remainder of Page Blank -

ELT Beacon Registration Data Block Format

```
*************  USMCC REGISTRATION DATABASE INFORMATION  ************

OWNER: NETJETS AVIATION
       4111 BRIDGEWAY AVENUE          TEL 1: WORK 6142395500
       COLUMBUS               OH      TEL 2:
       43219     USA                  TEL 3:
                                      TEL 4:
       EMAIL:

CONTACTS: SECURITY DEPARTMENT COMMAND P
     TEL 1: HOME 8007659423           TEL 1:
     TEL 2:                           TEL 2:
     TEL 3:                           TEL 3:
     TEL 4:                           TEL 4:

LEASING AGENT:

AIRCRAFT MANUFACTURER/MODEL: CESSNA CITATION      / 750 CITATION X
AIRCRAFT USE: (NO DATA PROVIDED)      COLOR: WHITE/MAROON STRIPES
RADIO EQP: VHF,HF                     CAPACITY:    10
TAIL NUMBER: N918QS

FIXED SURVIVAL CRAFT DESCRIPTION:

DEPLOYABLE SURVIVAL CRAFT DESCRIPTION:


AIRPORT PRIMARY SRR: AFRCC            SECONDARY SRR:
AIRPORT: KCMH                         COLUMBUS                      OH

MANUFACTURER: IESM                    MODEL NUMBER: 406

DATE FIRST REGISTERED: 27 AUG 2003    DATE DECAL EXPIRES: 27 AUG 2005
DATE LAST UPDATED:  27 AUG 2003

REMARKS:



SPECIAL STATUS:                       SPECIAL STATUS DATE:
SPECIAL STATUS INFO:
```

EPIRB Beacon Registration Data Block Format

```
*****************  USMCC REGISTRATION DATABASE INFORMATION  *****************

OWNER: LEONARD SHRIMP PRODUCERS INC
       1058 ISLAND AVENUE              TEL 1: HOME 813-934-4657
       TARPON SPRINGS          FL      TEL 2: WORK 813-934-5678
       34689     USA                   TEL 3: CELL 813-934-1234
                                       TEL 4: WORK 813-934-4444
       EMAIL: LEONARDSHRIMP@AOL.COM

CONTACTS: DAN LEONARD                  ELROY LEONARD
        TEL 1: HOME 813-937-0987       TEL 1: HOME 904-824-0532
        TEL 2: WORK 813-934-3465       TEL 2: CELL 904-829-6554
        TEL 3: CELL 813-934-1111       TEL 3:
        TEL 4:                         TEL 4:

VESSEL NAME: MISS MARIE
TYPE: POWER TRAWLER                    LENGTH OVERALL (FT):    75
COLOR: GRAY                            CAPACITY:   8
RADIO CALL SIGN: WAQ7615               REGISTRATION NO: 636170
RADIO EQP: VHF-FM, INMARSAT            INMARSAT NUMBER:
CELLULAR NUMBER:

NUMBER OF LIFE BOATS:     0            NUMBER OF LIFE RAFTS:     0

HOME PORT PRIMARY SRR: PACAREA         SECONDARY SRR:
HOME PORT: RICK'S MARINA               SHALLOTTE               NC

MANUFACTURER: LITTON                   MODEL NUMBER: 948-01
ACTIVATION TYPE: CAT1 (MANUAL AND AUTOMATIC)

BEACON CONTAINS SVDR:  NO

DATE FIRST REGISTERED: 26 JAN 1993     DATE DECAL EXPIRES: 31 DEC 2005
DATE LAST UPDATED:  26 JAN 2003

REMARKS:

SPECIAL STATUS:                        SPECIAL STATUS DATE:
SPECIAL STATUS INFO:
```

PLB Beacon Registration Data Block Format

```
*************  USMCC REGISTRATION DATABASE INFORMATION  ************

OWNER: MCHENAN DONALD C
       RFD 1 BOX 1435                 TEL 1: CELL 2345678901
       STONINGTON              ME     TEL 2: HOME 2073675013
       04681     USA                  TEL 3: WORK 2223333333
                                      TEL 4:
       EMAIL: MCHENAN.DONALD@AOL.COM

CONTACTS: REGINA MCHENAN                LAWRENCE BRAY JR
     TEL 1: HOME 2073675013           TEL 1: HOME 2073672686
     TEL 2: WORK 2073672201           TEL 2: CELL 3015557777
     TEL 3: CELL 3014575431           TEL 3:
     TEL 4: CELL 2121234580           TEL 4:

RADIO EQP: VHF-FM

VEHICLE TYPE: LAND VEHICLE
SPECIFIC USAGE: HUNTING

MANUFACTURER: MPR/ALDEN               MODEL NUMBER: 406S1010

DATE FIRST REGISTERED: 13 NOV 1997    DATE DECAL EXPIRES: 02 OCT 2005
DATE LAST UPDATED:  02 OCT 2003

REMARKS:



SPECIAL STATUS:                       SPECIAL STATUS DATE:
SPECIAL STATUS INFO:
```

Appendix 3

International RCC and SPOC Message Formats

International RCC and SPOC message formats are specified by Cospas-Sarsat as the standard formats for distributing alert data from MCCs to RCCs and SPOCs. As stated in section 2 of this document, the USMCC has worked closely with the Air Force and Coast Guard to develop U.S. national standards for alert data distribution.

In the event that the USMCC should be unavailable to process alert data, the Canadian MCC will provide alert data to U.S. RCCs using the Cospas-Sarsat standard format SIT 185.

The format of SIT 185 messages is described in detail in document C/S A.002 (Standard Interface Description). Sample messages are shown below. The field titled "REF" in line 2 of the SPOC message contains the trailing 5 digits of the MCC alert site number, in the same format as is contained on the RCC message field "SITE ID". The name of the sending MCC precedes the title "REF" (e.g., "USMCC REF") and is set dynamically, to allow this software to be run internationally.

Note that the 121/243 Ambiguity Resolution and various 406 messages to SPOCs optionally contain Incident Feedback Report information, as on messages to U.S. RCCs. The presence of Incident Feedback Report information is optional on messages sent to SPOCs.

If the 406 MHz Beacon Coding is not reliable, then "OTHER ENCODED INFORMATION" (Line 14) contains the statement "NO ENCODED DATA - THE BEACON CODING IS NOT RELIABLE" and other fields related to beacon coding are set to an appropriate default value (for example, "UNKNOWN").

In Line 15 ("OPERATIONAL INFORMATION"), item B contains

B. RELIABILITY OF DOPPLER POSITION DATA - ????

where ???? is "NIL" (no Doppler data provided),
"N/A" (ambiguity is resolved),
"GOOD" (Doppler position is reliable), or
"SUSPECT" (Doppler position is suspect).

Item C in Line 15 contains

C. LIKELY DOPPLER IMAGE POSITION - ????

where ???? is "NIL" (no Doppler data provided),
"N/A" (ambiguity is resolved),
"A POSITION" ("A" Doppler position is likely an image),
"B POSITION" ("B" Doppler position is likely an image), or
"SEE LINE 8." (image position not determined).

The determination that a Doppler position is likely an image is based on a check of the satellite

footprint for a previous solution without Doppler location, as described in document C/S A.002.

In Line 16 (“REMARKS”), the following comment is provided on a 406 MHz Position Conflict Alert:

THIS POSITION MORE THAN 50 KILOMETERS FROM PREVIOUS ALERT

- Remainder of Page Blank -

SAMPLE MESSAGE FOR

SIT 185

SAMPLE WITH MESSAGE FIELD ANNOTATIONS (406 MHz NOCR)

1. DISTRESS COSPAS-SARSAT NOTIFICATION OF COUNTRY OF BEACON REGISTRATION ALERT

2. MSG NO. 16999 USMCC REF 12345

3. DETECTED AT 22 JAN 06 1708 UTC BY SARSAT 09

4. DETECTION FREQUENCY 406.0269 MHZ

5. COUNTRY OF BEACON REGISTRATION 232/G.BRITAIN

6. USER CLASS - MARITIME ID MMSI LAST SIX DIGITS 387718

7. EMERGENCY CODE NIL

8. POSITIONS
   RESOLVED - NIL
   DOPPLER A - NIL
   DOPPLER B - NIL
   ENCODED - 50 24.0N 005 16.0W UPDATE TIME UNKNOWN

9. ENCODED POSITION PROVIDED BY EXTERNAL DEVICE

10. NEXT PASS TIMES
    RESOLVED - NIL
    DOPPLER A - NIL
    DOPPLER B - NIL
    ENCODED - NIL

11. HEX ID BEEE01D20001401 HOMING SIGNAL 121.5 MHZ

12. ACTIVATION TYPE - MANUAL

13. BEACON NUMBER ON AIRCRAFT OR VESSEL NO. 7

14. OTHER ENCODED INFORMATION
    A. BEACON MANUFACTURER AND MODEL NUMBER - LITTON/ 948

15. OPERATIONAL INFORMATION
    A. REGISTRATION INFORMATION AT UKMCC
    TELEX: 45677 SRCC G
    AFTN: EGQPZSZX
    TELEPHONE: (44-1752) 605444
    FACSIMILE: 1309-678308
    EMAIL: UKMCC@ATLAS.CO
    WEB:
    B. RELIABILITY OF ENCODED POSITION DATA - GOOD

16. REMARKS - NIL

END OF MESSAGE

SAMPLE MESSAGE FOR
SIT 185

SAMPLE 406 MHz RESOLVED POSITION ALERT
(LEOSAR - with encoded position)

1. DISTRESS COSPAS-SARSAT RESOLVED ALERT

2. MSG NO. 02441 USMCC REF 18018

3. DETECTED AT 07 JAN 04 1745 UTC BY SARSAT 09

4. DETECTION FREQUENCY 406.0248 MHZ

5. COUNTRY OF BEACON REGISTRATION 352/PANAMA

6. USER CLASS - EPIRB MARITIME USER ID 906000

7. EMERGENCY CODE - NONE

8. POSITIONS
   RESOLVED - 27 58.4N 092 38.0W
   DOPPLER A- 27 54.6N 092 35.4W PROB 74
   DOPPLER B- NIL
   ENCODED - 27 58.0N 092 38.1W UPDATE TIME UNKNOWN

9. ENCODED POSITION PROVIDED BY: NIL

10. NEXT PASS TIMES
    RESOLVED - 07 JAN 04 2039
    DOPPLER A- NIL
    DOPPLER B- NIL
    ENCODED - NIL

11. HEX ID AC08335534D34D1 HOMING SIGNAL 121.5

12. ACTIVATION TYPE - UNKNOWN

13. BEACON NUMBER ON AIRCRAFT OR VESSEL NIL

14. OTHER ENCODED INFORMATION
    A. BEACON MANUFACTURER AND MODEL NUMBER -
    UNKNOWN/ UNKNOWN

15. OPERATIONAL INFORMATION
    A. REGISTRATION INFORMATION - NIL
    B. RELIABILITY OF DOPPLER POSITION DATA - N/A
    C. LIKELY DOPPLER IMAGE POSITION - N/A

16. REMARKS - NIL

END OF MESSAGE

SAMPLE MESSAGE FOR
SIT 185

SAMPLE 406 MHz CONTINUED TRANSMISSION ALERT
(LEOSAR - with encoded position)

1. DISTRESS COSPAS-SARSAT POSITION RESOLVED UPDATE ALERT

2. MSG NO. 17002 USMCC REF 12345

3. DETECTED AT 22 FEB 95 2130 UTC BY COSPAS 06

4. DETECTION FREQUENCY 406.0269 MHZ

5. COUNTRY OF BEACON REGISTRATION 232/G.BRITAIN

6. USER CLASS - MARITIME ID MMSI LAST SIX DIGITS 387718

7. EMERGENCY CODE - NIL

8. POSITIONS
   RESOLVED - 55 23.2N 022 29.9W
   DOPPLER A - 55 19.1N 022 20.4W PROB 90
   DOPPLER B -
   ENCODED - 55 23.2N 022 25.0W UPDATE TIME UNKNOWN

9. ENCODED POSITION PROVIDED BY EXTERNAL DEVICE

10. NEXT PASS TIMES
    RESOLVED - 22 FEB 96 2201 UTC
    DOPPLER A - NIL
    DOPPLER B - NIL
    ENCODED - NIL

11. HEX ID BEEE01D20001401 HOMING SIGNAL 121.5 MHZ

12. ACTIVATION TYPE - MANUAL

13. BEACON NUMBER ON AIRCRAFT OR VESSEL NO. 7

14. OTHER ENCODED INFORMATION
    A. BEACON MANUFACTURER AND MODEL NUMBER - LITTON/ 948
    B. ENCODED POSITION ACCURACY - 2 MINUTES

15. OPERATIONAL INFORMATION
    A. REGISTRATION INFORMATION AT UKMCC
    TELEX: 45677 SRCC G
    AFTN: EGQPZSZX
    TELEPHONE: (44-1752) 605444
    FACSIMILE: 1309-678308
    EMAIL: UKMCC@ATLAS.CO
    WEB:
    B. RELIABILITY OF DOPPLER POSITION DATA - N/A

16. REMARKS - NIL

END OF MESSAGE

SAMPLE MESSAGE FOR
SIT 185

SAMPLE 406 MHz POSITION CONFLICT ALERT
(LEOSAR - without encoded position)

1. DISTRESS COSPAS-SARSAT POSITION CONFLICT ALERT

2. MSG NO. 04011 USMCC REF 17975

3. DETECTED AT 06 JAN 06 2322 UTC BY SARSAT 07

4. DETECTION FREQUENCY 406.0249 MHZ

5. COUNTRY OF BEACON REGISTRATION 227/FRANCE

6. USER CLASS - EPIRB MARITIME USER ID 305760

7. EMERGENCY CODE - NONE

8. POSITIONS
   RESOLVED - NIL
   DOPPLER A- 15 53.7N 061 22.7W PROB 50
   DOPPLER B- 10 38.8N 085 31.5W PROB 50
   ENCODED - NIL

9. ENCODED POSITION PROVIDED BY: NIL

10. NEXT PASS TIMES
   RESOLVED - NIL
   DOPPLER A- 06 JAN 04 2358
   DOPPLER B- 07 JAN 04 0022
   ENCODED - NIL

11. HEX ID 9C69034171534D1 HOMING SIGNAL 121.5

12. ACTIVATION TYPE - MANUAL

13. BEACON NUMBER ON AIRCRAFT OR VESSEL NIL

14. OTHER ENCODED INFORMATION
   A. BEACON MANUFACTURER AND MODEL NUMBER -
   UNKNOWN/ UNKNOWN

15. OPERATIONAL INFORMATION
   A. REGISTRATION INFORMATION AT
   FMCC/DGAC (ELTs & PLBs) MRCC GRIS NES (EPIRBs)
   TELEX: 530800, 130680 NCSAR A
   AFTN: LFIAZSZX
   TELEPHONE: 33 561254382
   FACSIMILE: 33 33561274878
   EMAIL: fmcc@cnes.fr
   WEB:
   B. RELIABILITY OF DOPPLER POSITION DATA - SUSPECT
   C. LIKELY DOPPLER IMAGE POSITION - SEE PROBABILITY ABOVE

16. REMARKS -
   THIS POSITION MORE THAN 50 KILOMETERS FROM PREVIOUS ALERT

END OF MESSAGE

SAMPLE MESSAGE FOR
SIT 185

SAMPLE 406 MHz NOCR ALERT
(LEOSAR - encoded position)

1. DISTRESS COSPAS-SARSAT NOTIFICATION OF COUNTRY OF BEACON REGISTRATION ALERT

2. MSG NO. 16999 USMCC REF 12345

3. DETECTED AT 22 FEB 95 1708 UTC BY SARSAT 04

4. DETECTION FREQUENCY 406.0269 MHZ

5. COUNTRY OF BEACON REGISTRATION 232/G.BRITAIN

6. USER CLASS - MARITIME ID MMSI LAST SIX DIGITS 387718

7. EMERGENCY CODE - NIL

8. POSITIONS
   RESOLVED - NIL
   DOPPLER A - NIL
   DOPPLER B - NIL
   ENCODED - 50 24.0N 005 16.0W UPDATE TIME UNKNOWN

9. ENCODED POSITION PROVIDED BY EXTERNAL DEVICE

10. NEXT PASS TIMES
    RESOLVED - NIL
    DOPPLER A - NIL
    DOPPLER B - NIL
    ENCODED - NIL

11. HEX ID BEEE01D20001401 HOMING SIGNAL 121.5 MHZ

12. ACTIVATION TYPE - MANUAL

13. BEACON NUMBER ON AIRCRAFT OR VESSEL NO. 7

14. OTHER ENCODED INFORMATION
    A. BEACON MANUFACTURER AND MODEL NUMBER -
    LITTON/ 948

15. OPERATIONAL INFORMATION
    A. REGISTRATION INFORMATION AT
    UKMCC
    TELEX: 45677 SRCC G
    AFTN: EGQPZSZX
    TELEPHONE: (44-1752) 605444
    FACSIMILE: 1309-678308
    EMAIL: UKMCC@ATLAS.CO
    WEB:
    B. RELIABILITY OF ENCODED POSITION DATA - GOOD

16. REMARKS - NIL

END OF MESSAGE

SAMPLE MESSAGE FOR
SIT 185

SAMPLE 406 MHz INITIAL ALERT
(GEOSAR - without encoded position)

1. DISTRESS COSPAS-SARSAT INITIAL ALERT

2. MSG NO. 16998 USMCC REF 12345

3. DETECTED AT 22 FEB 95 1708 UTC BY GOES 08

4. DETECTION FREQUENCY 406.0269 MHZ

5. COUNTRY OF BEACON REGISTRATION 232/G.BRITAIN

6. USER CLASS - MARITIME ID MMSI LAST SIX DIGITS 387718

7. EMERGENCY CODE - NIL

8. POSITIONS
   RESOLVED - NIL
   DOPPLER A - NIL
   DOPPLER B - NIL
   ENCODED - NIL

9. ENCODED POSITION PROVIDED BY EXTERNAL DEVICE

10. NEXT PASS TIMES
    RESOLVED - NIL
    DOPPLER A - NIL
    DOPPLER B - NIL
    ENCODED - NIL

11. HEX ID BEEE01D20001401 HOMING SIGNAL 121.5 MHZ

12. ACTIVATION TYPE - MANUAL

13. BEACON NUMBER ON AIRCRAFT OR VESSEL NO. 7

14. OTHER ENCODED INFORMATION
    A. BEACON MANUFACTURER AND MODEL NUMBER -
    LITTON/ 948

15. OPERATIONAL INFORMATION
    A. REGISTRATION INFORMATION AT
    UKMCC
    TELEX: 45677 SRCC G
    AFTN: EGQPZSZX
    TELEPHONE: (44-1752) 605444
    FACSIMILE: 1309-678308
    EMAIL: UKMCC@ATLAS.CO
    WEB:
    B. RELIABILITY OF ENCODED POSITION DATA - GOOD

16. REMARKS - NIL

END OF MESSAGE

SAMPLE MESSAGE FOR
SIT 185

SAMPLE 121.5 MHz INITIAL ALERT

1. DISTRESS COSPAS-SARSAT INITIAL ALERT

2. MSG NO. 18001 USMCC REF 40007/40008

3. DETECTED AT 22 FEB 96 1738 UTC BY SARSAT 02

4. DETECTION FREQUENCY 121.5678 MHz

5. NIL

6. NIL

7. NIL

8. POSITIONS
   RESOLVED - NIL
   DOPPLER A - 56 16.1N 001 18.4W PROB 50
   DOPPLER B - 54 47.9N 019 37.0W PROB 50
   ENCODED - NIL

9. NIL

10. NEXT PASS TIMES
    RESOLVED - NIL
    DOPPLER A - 22 FEB 96 1830 UTC
    DOPPLER B - 22 FEB 96 1831 UTC
    ENCODED - NIL

11. NIL

12. NIL

13. NIL

14. NIL

15. OPERATIONAL INFORMATION
    A. DOPPLER TECHNICAL QUALITY - FAIR

16. REMARKS - NIL

END OF MESSAGE

Appendix 4

Alert Message Structures

Alert Message structures are presented here. Each message is on a separate page. The length of each message section can vary. Note that for all 160 series messages (406 Beacon alert messages) the Support Data Block starts on a new page. The Incident Feedback Sheet (page 3 for the 160 series) also starts on a new page.

The message font is Courier New, 10 point.

- *Remainder of Page Blank* -

121/243 First Alert

Message Type 151: The Message Administration Block contains information as described for messages in the Cospas-Sarsat Standard Interface Description for messages. It also contains the plain language title of the message.

Sample Message Type 151 Administration Block:

```
/62141 00000/3660/98 015 0030
/151/366F


**************************  121/243 FIRST ALERT  **************************
```

Field Header	Starting Column	Length	Example of data	Comments
/	1	1	/	Message Header field delimiter
None	2	5	62141	Current Message Number
None	8	5	00000	Original message number
/	13	1	/	
None	14	4	3660	Message originator code

/	18	1	/	
None	19	11	98 015 0030	Year (2 digits); Julian Date; Time
/	1	1	/	
None	2	3	151	Message Type
/	5	1	/	
None	6	4	366F	Message destination code

Sample Message Type 151 Alert Data Block:

```
*********************  DETECTION TIME AND POSITIONS ************************

SITE ID  LATITUDE LONGITUDE DETECT TIME  FREQ    SWP SAT SOURCE SRR   /BUFFER
3A12345  29 23.4N 123 34.5W 15 0015 JAN D121.457 YES S3  TX1    PACAR
3B12345  28 24.4N 089 34.5W 15 0015 JAN D121.457 YES S3  TX1    AFRCC /CGD08
2A12347  39 12.4N 123 34.5W 15 0016 JAN  243.001 UNK S3  TX1    PACAR
2B12347  38 11.4N 089 34.5W 15 0016 JAN  243.001 UNK S3  TX1    AFRCC
```

Field Header	Starting Column	Length	Example of Data	Comments
SITE ID	1	7	3A12345	
LATITUDE	10	8	29 23.4N	
LONGITUDE	19	9	123 34.5W	
DETECT TIME	29	11	15 0015 JAN	
(no header)	41	1	D	Blank if not a dual signal
FREQ	42	7	121.457	
SWP	50	3	YES	

SAT	54	3	S3	
SOURCE	58	6	TX1	
SRR	65	6	PACAR	
/	71	1	/	Only used when there is data in the BUFFER field
BUFFER	72	6	CGD08	

Sample Message Type 151 Support Data Block:

```
**********************  SUPPORTING INFORMATION  ***************************

USMCC PROCESSING TIME: 15 0030 JAN

THIS ALERT MESSAGE IS BEING SENT TO:
        PACAR, AFRCC, CGD08

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO: N/A


PREVIOUS PASS INFORMATION: NONE

NEXT TIME SIGNAL SHOULD BE DETECTED:

SITE ID  SOL  DETECT TIME  SAT  SOURCE  VISIBILITY
3A12345  A    15 0045 JAN  S3   SSE     HIGH
3A12345  A    15 0239 JAN  C4   OSE     LOW (WILL NOT COUNT AS MISSED PASS)
3B12345  B    15 0200 JAN  S3   SSE     LOW (WILL NOT COUNT AS MISSED PASS)
3B12345  B    15 0240 JAN  C6   TX1     HIGH
2A12347  A    15 0200 JAN  S3   SSE     HIGH
2A12347  A    15 0239 JAN  C4   OSE     HIGH
2B12347  B    15 0200 JAN  S3   SSE     LOW (WILL NOT COUNT AS MISSED PASS)
2B12347  B    15 0240 JAN  C6   TX1     LOW (WILL NOT COUNT AS MISSED PASS)


QQQQ
/LASSIT
/ENDMSG
```

Sample Message Type 151 Support Data Block:

Field Header	Starting Column	Length	Example of Data	Comments
USMCC PROCESSING TIME:	24	11	15 0030 JAN	
THIS ALERT MESSAGE IS BEING SENT TO:				
	9	60	PACAR, AFRCC, CGD08	Data always starts on line following header
ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO: N/A				
	N/A	N/A	Blank for this message type.	Data always starts on line following header. No data is available because this is the first alert message.
PREVIOUS PASS INFORMATION: NONE				
	N/A	N/A	Blank for this message type.	No data is available because this is the first alert message.
NEXT TIME SIGNAL SHOULD BE DETECTED:				
SITE ID	1	7	SA12345	
SOL	10	3	A	
DETECT TIME	15	11	15 0045 JAN	
SAT	28	3	S3	
SOURCE	33	6	SSE	
VISIBILITY	41	35	HIGH	
QQQQ /LASSIT /ENDMSG				End of message flag

121/243 Notification of Ambiguity Resolution

Message Type 156: The Message Administration Block contains information as described for messages in the Cospas-Sarsat Standard Interface Description for messages. It also contains the plain language title of the message, the Site ID and the Image Site ID.

Sample Message Type 156 Administration Block:

```
/62141 00000/3660/98 015 0100
/156/366F


****************** 121/243 NOTIFICATION OF AMBIGUITY RESOLUTION *************

SITE ID: 3A12345                                              IMAGE SITE: 3B12345
```

Field Header	Starting Column	Length	Example of data	Comments
/	1	1	/	Message Header field delimiter
None	2	5	62141	Current Message Number
None	8	5	00000	Original message number
/	13	1	/	
None	14	4	3660	Message originator code

/	18	1	/	
None	19	11	98 015 0100	Year (2 digits); Julian Date; Time
/	1	1	/	
None	2	3	156	Message Type
/	5	1	/	
None	6	4	366F	Message destination code
Site ID	10	7	3A12345	
Image Site	71	7	3B12345	

Sample Message Type 156 Alert Data Block:

```
**************  AMBIGUITY RESOLVED TO THE FOLLOWING POSITION  ***************

LATITUDE  LONGITUDE  DURATION   PASSES  SRR   /BUFFER
29 23.4N  123 34.5W  001.5 HRS  002     PACAR

**********  AMBIGUITY RESOLVED FROM THE FOLLOWING NEW INFORMATION  **********

SITE ID  LATITUDE LONGITUDE DETECT TIME  FREQ    SWP SAT SOURCE
3A12345  29 23.4N 123 34.5W 15 0045 JAN D121.457 YES S3  SSE
```

Field Header	Starting Column	Length	Example of Data	Comments
Ambiguity resolved to the following position				
LATITUDE	1	8	29 23.4N	
LONGITUDE	11	9	123 34.5W	
DURATION	22	9	001.5 HRS	
PASSES	33	6	002	
SRR	41	6	PACAR	
/	47	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	48	6	(blank)	No data in BUFFER in this example
Ambiguity resolved from the following new information				
SITE ID	1	7	3A12345	
LATITUDE	10	8	29 23.4N	
LONGITUDE	19	9	123 34.5W	
DETECT TIME	29	11	15 0015 JAN	
(no header)	41	1	D	Blank if not a dual signal
FREQ	42	7	121.457	
SWP	50	3	YES	
SAT	54	3	S3	
SOURCE	58	6	TX1	

Sample Message Type 156 Support Data Block:

```
**********************  SUPPORTING INFORMATION  ***************************

USMCC PROCESSING TIME: 15 0058 JAN

THIS ALERT MESSAGE IS BEING SENT TO:
        PACAR

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:
        PACAR, CGD08, AFRCC

PREVIOUS PASS INFORMATION:

SITE ID  LATITUDE LONGITUDE DETECT TIME  FREQ    SWP SAT SOURCE SRR   /BUFFER
3A12345  29 23.4N 123 34.5W 15 0015 JAN D121.457 YES S3  MULT   PACAR

NEXT TIME SIGNAL SHOULD BE DETECTED:

SITE ID  SOL  DETECT TIME  SAT  SOURCE  VISIBILITY
3A12345  C    15 0220 JAN  S3   SSE     HIGH
3A12345  C    15 0239 JAN  C4   OSE     LOW (WILL NOT COUNT AS MISSED PASS)
```

Field Header	Starting Column	Length	Example of Data	Comments
USMCC PROCESSING TIME:	24	11	15 0030 JAN	
THIS ALERT MESSAGE IS BEING SENT TO:				
	9	60	PACAR	Data always starts on line following header
ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:				
	9	60	PACAR, AFRCC, CGD08	Data always starts on line following header.
PREVIOUS PASS INFORMATION:				
SITE ID	1	7	3A12345	
LATITUDE	10	8	29 23.4N	
LONGITUDE	19	9	123 34.5W	
DETECT TIME	29	11	15 0015 JAN	
(no header)	41	1	D	Blank if not a dual signal
FREQ	42	7	121.457	
SWP	50	3	YES	
SAT	54	3	S3	
SOURCE	58	6	MULT	
SRR	65	6	PACAR	
/	71	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	72	6	(blank)	No data in BUFFER in this example
NEXT TIME SIGNAL SHOULD BE DETECTED:				
SITE ID	1	7	SA12345	
SOL	10	3	A	
DETECT TIME	15	11	15 0045 JAN	
SAT	28	3	S3	
SOURCE	33	6	SSE	

VISIBILITY	41	35	HIGH	

121/243 Composite Position Update

Message Type 157: The Message Administration Block contains information as described for messages in the Cospas-Sarsat Standard Interface Description for messages. It also contains the plain language title of the message and the Site ID.

Sample Message Type 157 Administration Block:

```
/62141 00000/3660/98 015 0200
/157/366F


********************  121/243 COMPOSITE POSITION UPDATE **********************

SITE ID: 3A12345
```

Field Header	Starting Column	Length	Example of data	Comments
/	1	1	/	Message Header field delimiter
None	2	5	62141	Current Message Number
None	8	5	00000	Original message number
/	13	1	/	
None	14	4	3660	Message originator code

/	18	1	/	
None	19	11	98 015 0200	Year (2 digits); Julian Date; Time
/	1	1	/	
None	2	3	157	Message Type
/	5	1	/	
None	6	4	366F	Message destination code
Site ID	10	7	3A12345	

Sample Message Type 157 Alert Data Block:

```
******************** POSITION UPDATED TO THE FOLLOWING  ********************

LATITUDE  LONGITUDE  DURATION   PASSES  SRR   /BUFFER
29 23.4N  123 34.5W  001.6 HRS  003     PACAR

**************** POSITION UPDATED FROM THE FOLLOWING ALERT  ****************

SITE ID  LATITUDE LONGITUDE DETECT TIME  FREQ    SWP SAT SOURCE
3A12345  29 23.4N 123 34.5W 15 0150 JAN D121.457 YES C6  CMCC
```

Field Header	Starting Column	Length	Example of Data	Comments
Position updated to the following				
LATITUDE	1	8	29 23.4N	
LONGITUDE	11	9	123 34.5W	
DURATION	22	9	001.5 HRS	
PASSES	33	6	003	
SRR	41	6	PACAR	
/	47	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	48	6	(blank)	No data in BUFFER in this example
Position updated from the following alert				
SITE ID	1	7	3A12345	
LATITUDE	10	8	29 23.4N	
LONGITUDE	19	9	123 34.5W	
DETECT TIME	29	11	15 0015 JAN	
(no header)	41	1	D	Blank if not a dual signal
FREQ	42	7	121.457	
SWP	50	3	YES	
SAT	54	3	S3	
SOURCE	58	6	TX1	

Sample Message Type 157 Support Data Block:

```
**********************  SUPPORTING INFORMATION  ***************************

USMCC PROCESSING TIME: 15 0159 JAN

THIS ALERT MESSAGE IS BEING SENT TO:
        PACAR

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:
        PACAR, AFRCC, CGD08

PREVIOUS PASS INFORMATION:

SITE ID  LATITUDE LONGITUDE DETECT TIME  FREQ    SWP SAT SOURCE SRR   /BUFFER
3A12345  29 23.4N 123 34.5W 15 0015 JAN D121.457 YES S3  MULT   PACAR
3A12345  29 23.4N 123 34.5W 15 0045 JAN D121.457 YES S3  SSE    PACAR

NEXT TIME SIGNAL SHOULD BE DETECTED:

SITE ID  SOL  DETECT TIME  SAT  SOURCE  VISIBILITY
3A12345  C    15 0200 JAN  S3   SSE     HIGH
3A12345  C    15 0239 JAN  C4   OSE     HIGH


QQQQ
/LASSIT
/ENDMSG
```

Field Header	Starting Column	Length	Example of Data	Comments
USMCC PROCESSING TIME:	24	11	15 0159 JAN	
THIS ALERT MESSAGE IS BEING SENT TO:				
	9	60	PACAR	Data always starts on line following header
ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:				
	9	60	PACAR, AFRCC, CGD08	Data always starts on line following header.
PREVIOUS PASS INFORMATION:				
SITE ID	1	7	3A12345	
LATITUDE	10	8	29 23.4N	
LONGITUDE	19	9	123 34.5W	
DETECT TIME	29	11	15 0015 JAN	
(no header)	41	1	D	Blank if not a dual signal
FREQ	42	7	121.457	
SWP	50	3	YES	
SAT	54	3	S3	
SOURCE	58	6	MULT	
SRR	65	6	PACAR	
/	71	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	72	6	(blank)	No data in BUFFER in this example
NEXT TIME SIGNAL SHOULD BE DETECTED:				
SITE ID	1	7	SA12345	
SOL	10	3	A	
DETECT TIME	15	11	15 0045 JAN	
SAT	28	3	S3	
SOURCE	33	6	SSE	

VISIBILITY	41	35	HIGH	

121/243 Missed Pass/Site Status Report

Message Type 158: The Message Administration Block contains information as described for messages in the Cospas-Sarsat Standard Interface Description for messages. It also contains the plain language title of the message.

Sample Message Type 158 Administration Block:

```
/62141 00000/3660/98 015 0300
/158/366F

****************** 121/243 MISSED PASS/SITE STATUS REPORT ******************
```

Field Header	Starting Column	Length	Example of data	Comments
/	1	1	/	Message Header field delimiter
None	2	5	62141	Current Message Number
None	8	5	00000	Original message number
/	13	1	/	
None	14	4	3660	Message originator code
/	18	1	/	

None	19	11	98 015 0200	Year (2 digits); Julian Date; Time
/	1	1	/	
None	2	3	158	Message Type
/	5	1	/	
None	6	4	366F	Message destination code

Sample Message Type 158 Alert Data Block **for Missed Pass message** :

```
*************************  CURRENT ACTIVE SITES  ***************************

SITE ID  LATITUDE  LONGITUDE  DURATION  PASSES  SRR   /BUFFER   MP CLOSED
3A12345  29 45.5N  123 56.9W  001.5 HRS 003     PACAR           3  YES - MP
2B12347  39 23.5N  124 34.5W  001.0 HRS 002     PACAR           1  NO


********  ABOVE SITE(S) WERE NOT DETECTED DURING THE FOLLOWING PASS  ********

DETECT TIME  SAT SOURCE
15 0250 JAN  S3  CA1
```

Sample Message Type 158 Alert Data Block **for Site Closure due to Time message and to Operator action**:

```
*************************  CURRENT ACTIVE SITES  ***************************

SITE ID  LATITUDE  LONGITUDE  DURATION  PASSES  SRR   /BUFFER   MP CLOSED
3A12345  29 45.5N  123 56.9W  001.5 HRS 003     PACAR           0  YES - TIME
2B12347  39 23.5N  124 34.5W  001.0 HRS 002     PACAR           2  YES-OPERATOR


********  ABOVE SITE(S) WERE NOT DETECTED DURING THE FOLLOWING PASS  ********

DETECT TIME  SAT SOURCE
NA           NA  NA
```

Field Header	Starting Column	Length	Example of Data	Comments
SITE ID	1	7	3A12345	
LATITUDE	10	8	29 45.5N	
LONGITUDE	20	9	123 56.9W	

DURATION	31	9	001.5 HRS	
PASSES	41	6	003	
SRR	49	6	PACAR	
/	55	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	56	6	(blank)	No data in BUFFER in this example
MP	65	1	1	
CLOSED	68	6	NO	“YES - TIME” if Site Closed due to Time. “YES - MP” if Site Closed due to Missed Pass. “YES-OPEATOR” if Site Closed due by MCC operator.
Above site(s) were not detected during the following pass				

DETECT TIME	1	11	15 0250 JAN	NA if Site Closed due to Time
SAT	14	3	S3	NA if Site Closed due to Time
SOURCE	18	6	CA1	NA if Site Closed due to Time

Sample Message Type 158 Support Data Block:

```
**********************  SUPPORTING INFORMATION  ***************************

USMCC PROCESSING TIME: 15 0256 JAN

THIS ALERT MESSAGE IS BEING SENT TO:
        PACAR

ALERT MESSAGES FOR SIGNAL(S) PREVIOUSLY SENT TO:
        PACAR, AFRCC, CGD08

PREVIOUS PASS INFORMATION:

SITE ID  LATITUDE LONGITUDE DETECT TIME  FREQ    SWP SAT SOURCE SRR   /BUFFER
3A12345  29 45.4N 123 55.5W 15 0200 JAN D121.457 YES S3  TX2    PACAR
3A12345  29 45.9N 123 59.5W 15 0124 JAN D121.457 YES S6  CA1    PACAR
2B12347  39 23.4N 123 34.5W 15 0159 JAN 243.011  YES S3  CA2    PACAR /CGD13


NEXT TIME SIGNAL(S) SHOULD BE DETECTED:

SITE ID  SOL  DETECT TIME  SAT  SOURCE  VISIBILITY
1A12345  C    15 0200 JAN  S3   SSE     HIGH
1A12345  C    15 0239 JAN  C4   OSE     LOW (WILL NOT COUNT AS MISSED PASS)


QQQQ
/LASSIT
/ENDMSG
```

Field Header	Starting Column	Length	Example of Data	Comments
USMCC PROCESSING TIME:	24	11	15 0256 JAN	
THIS ALERT MESSAGE IS BEING SENT TO:				
	9	60	PACAR	Data always starts on line following header
ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:				
	9	60	PACAR, AFRCC, CGD08	Data always starts on line following header.
PREVIOUS PASS INFORMATION:				
SITE ID	1	7	3A12345	
LATITUDE	10	8	29 45.4N	
LONGITUDE	19	9	123 55.5W	
DETECT TIME	29	11	15 0200 JAN	
(no header)	41	1	D	Blank if not a dual signal
FREQ	42	7	121.457	
SWP	50	3	YES	
SAT	54	3	S3	
SOURCE	58	6	TX2	
SRR	65	6	PACAR	
/	71	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	72	6	(blank)	No data in BUFFER in this example
NEXT TIME SIGNAL(S) SHOULD BE DETECTED:				
SITE ID	1	7	SA12345	
SOL	10	3	C	
DETECT TIME	15	11	15 0200 JAN	
SAT	28	3	S3	
SOURCE	33	6	SSE	

VISIBILITY	41	35	HIGH	

406 Beacon Unlocated First Alert

Message Type 160: The Message Administration Block contains information as described for messages in the Cospas-Sarsat Standard Interface Description for messages. It also contains the plain language title of the message.

Sample Message Type 160 Administration Block:

```
/62145 00000/3660/98 046 0104
/160/366M


**********************  406 BEACON UNLOCATED FIRST ALERT **********************

BEACON ID: ADCD0 16672 C0401              SITE ID: 73324
```

Field Header	Starting Column	Length	Example of data	Comments
/	1	1	/	Message Header field delimiter
None	2	5	62145	Current Message Number
None	8	5	00000	Original message number
/	13	1	/	
None	14	4	3660	Message originator code

/	18	1	/	
None	19	11	98 046 0104	Year (2 digits); Julian Date; Time
/	1	1	/	
None	2	3	160	Message Type
/	5	1	/	
None	6	4	366M	Message destination code
Beacon ID	12	17	ADCD0 16672 C0401	
Site ID	51	28	73324	

Sample Message Type 160 Alert Data Block:

```
*****************  DETECTION TIME AND POSITIONS FOR THE BEACON  *************

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE  SRR   /BUFFER
N/A   N/A  N/A                15 0004 FEB  S3   SSE     CGD07
```

Field Header	Starting Column	Length	Example of Data	Comments
PROB	1	3	N/A	Probability (01-99, N/A)
SOL	7	3	N/A	Solution Identifier (A, B, C, E, N/A)
LATITUDE	12	8	N/A	
LONGITUDE	21	9	N/A	
DETECT TIME	32	11	15 0004 FEB	
SAT	45	3	S3	
SOURCE	50	6	SSE	

SRR	58	6	CGD07	
/	64	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	65	6	(blank)	

Sample Message Type 160 Beacon Decode Data Block:

```
************  BEACON ID CONTAINS THE FOLLOWING ENCODED INFORMATION  *********

COUNTRY     : USA              CRAFT ID   : WAQ7615
MID CODE    : 366              HOMING     : 121.5 MHZ
MANUFACTURER: LITTON           MODEL      : 948-000001
SERIAL NUM  : 234567           BEACON TYPE: MARITIME
```

Field Header	Starting Column	Length	Example of Data	Comments
COUNTRY	15	16	USA	
MID	15	3	366	
MANUFACTURER	15	16	LITTON	
SERIAL NUM	15	14	234567	
24 BIT ADDR	15	10	HEX=ADC123	Set in place of SERIAL NUM
CRAFT ID	45	12	WAQ7615	
HOMING	45	8	121.5 MHZ	
MODEL	45	16	948-000001	
BEACON TYPE	45	24	MARITIME	
PROGRAM	10	22	SHUTTLE - NASA	Special program name
PROGRAM BLOCK REGISTRATION ID	63	15		15 hexadecimal id linked with registration data
SEPIRB ID	15	14	234567	Special use
HHR ID	10	14	234544	Special use
POSITION RESOLUTION	53	7	REFINED	Special use. “REFINED”: refined position. “NONE”: no position. “COARSE”: 1 degree of latitude and 1 degree of longitude. “GROSS”: 1 degree of latitude and 15 degrees of longitude.
MINUTES FOR GPS LOC	22	4	2	Special use.
HOURS ACTIVE	46	7	1	Special use.
ZEROIZE STATUS	17	3	YES	Special use

Field Header	Starting Column	Length	Example of Data	Comments
COUNTRY	15	16	USA	
MID	15	3	366	
MANUFACTURER	15	16	LITTON	
SERIAL NUM	15	14	234567	
24 BIT ADDR	15	10	HEX=ADC123	Set in place of SERIAL NUM
CRAFT ID	45	12	WAQ7615	
HOMING	45	8	121.5 MHZ	
MODEL	45	16	948-000001	
BEACON TYPE	45	24	MARITIME	
PROGRAM	10	22	SHUTTLE - NASA	Special program name
PROGRAM BLOCK REGISTRATION ID	63	15		15 hexadecimal id linked with registration data
TEST MODE	43	3	NO	Special use

Sample Message Type 160 Beacon Registration Data Block:

```
******************  USMCC REGISTRATION DATABASE INFORMATION  ****************

OWNER: LEONARD SHRIMP PRODUCERS INC
       1058 ISLAND AVENUE            HOME TEL: 813-934-4657
       TARPON SPRINGS          FL    WORK TEL: 813-934-5678
       34689     USA

CONTACTS: DAN LEONARD                ELROY LEONARD
          HOME TEL: 813-937-0987     HOME TEL: 904-824-0532
          WORK TEL: 813-934-3465     WORK TEL: 904-829-6554

CELLULAR NUMBER:

VESSEL NAME: MISS MARIE
TYPE: POWER TRAWLER                  LENGTH OVERALL (FT):   75
COLOR: GRAY                          CAPACITY:   8
REGISTRATION NO: 636170              RADIO CALL SIGN: WAQ7615
INMARSAT NUMBER:                     RADIO EQP: VHF-FM, INMARSAT

HOME PORT: RICK'S MARINA             SHALLOTTE               NC
ALTERNATE PORT:

MANUFACTURER: LITTON                 MODEL NUMBER: 948-01
ACTIVATION TYPE: CAT1 (MANUAL OR AUTOMATIC)

DATE FIRST REGISTERED: 26 JAN 1993   DATE DECAL EXPIRES: 31 DEC 1995
DATE LAST UPDATED:  26 JAN 1993

REMARKS:
```

Sample Message Type 160 Beacon Registration Data Block:

Field Header	Starting Column	Length	Example of Data	Comments
OWNER NAME	8	28	LEONARD SHRIMP PRODUCERS INC	
OWNER STREET	8	23	1058 ISLAND AVE	
OWNER CITY	8	23	TARPON SPRINGS	
OWNER STATE	32	2	FL	
OWNER ZIP	8	6	34689	
OWNER COUNTRY	18	16	USA	
OWNER HOME TELE	21	12	813-934-4657	
OWNER WORK TELE	21	12	813-934-5678	
PRI CONTACT NAME	11	23	DAN LEONARD	
PRI CONTACT HOME TEL	21	12	813-937-0987	
PRI CONTACT WORK TEL	21	12	813-934-3456	
SEC CONTACT NAME	38	23	ELROY LEONARD	
SEC CONTACT HOME TEL	48	12	904-824-0532	
SEC CONTACT WORK TEL	48	12	904-829-6554	
CELLULAR NUMBER	18	12		
VESSEL NAME	14	21	MISS MARIE	
TYPE	7	20	POWER TRAWLER	
COLOR	8	13	GRAY	
REGISTRATION NO	18	6	636170	
INMARSAT NO	18	12		
LENGTH OVERALL	59	4	75	
CAPACITY	48	4	8	
RADIO CALL SIGN	55	10	WAQ7615	
RADIO EQP	49	22	VHF-FM, INMARSAT	

HOME PORT NAME	12	20	RICK’S MARINA	
HOME PORT CITY	38	23	SHALLOTTE	
HOME PORT STATE	62	2	NC	
ALTERNATE PORT	17	22		
MANUFACTURER	15	20	LITTON	
MODEL NUMBER	52	10	948-01	
ACTIVATION TYPE	18	30	CAT1 (MANUAL OR AUTOMATIC)	
DATE FIRST REGISTERED	24	11	26 JAN 1993	
DATE DECAL EXPIRES	58	11	31 DEC 1995	
DATE LAST UPDATE	21	11	26 JAN 1993	
REMARKS	10	120		

Sample Message Type 160 Support Data Block:

```
************************  SUPPORTING INFORMATION  ************************

USMCC PROCESSING TIME: 15 0100 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
        CGD07

ALERT MESSAGES FOR THIS BEACON PREVIOUSLY SENT TO: N/A


PREVIOUS PASS INFORMATION: N/A


NEXT TIME BEACON SHOULD BE DETECTED: N/A



QQQQ
/LASSIT
/ENDMSG
```

Field Header	Starting Column	Length	Example of Data	Comments
USMCC PROCESSING TIME:	24	11	15 0100 FEB	
THIS ALERT MESSAGE IS BEING SENT TO:				
	9	60	CGD07	Data always starts on line following header
ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO: N/A				

	9	60	N/A	Data always starts on line following header.
PREVIOUS PASS INFORMATION: N/A				
NEXT TIME SIGNAL(S) SHOULD BE DETECTED:				

406 Beacon Located First Alert (Ambiguity Unresolved)

Message Type 161: The Message Administration Block contains information as described for messages in the Cospas-Sarsat Standard Interface Description for messages. It also contains the plain language title of the message.

Sample Message Type 161 Administration Block:

```
/62145 00000/3660/98 046 0104
/161/366M


***********  406 BEACON LOCATED FIRST ALERT (AMBIGUITY UNRESOLVED) ***********

BEACON ID: ADCD0 16672 C0401             SITE ID: 73326
```

Field Header	Starting Column	Length	Example of data	Comments
/	1	1	/	Message Header field delimiter
None	2	5	62146	Current Message Number
None	8	5	00000	Original message number
/	13	1	/	
None	14	4	3660	Message originator code

/	18	1	/	
None	19	11	98 046 0105	Year (2 digits); Julian Date; Time
/	1	1	/	
None	2	3	161	Message Type
/	5	1	/	
None	6	4	366M	Message destination code
Beacon ID	12	17	ADCD0 16672 C0401	
Site ID	51	28	73326	

Sample Message Type 161 Alert Data Block:

```
**************  DETECTION TIME AND POSITIONS FOR THE BEACON  ****************

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE  SRR   /BUFFER
50    A    28 25.6N 100 12.3W  15 0045 FEB  S3   SSE     CGD08 /AFRCC
50    B    28 35.6N 072 18.3W  15 0045 FEB  S3   SSE     CGD07

OR

N/A   E    28 34.5N 072 12.3W  15 0045 FEB  S3   SSE     CGD07
```

Field Header	Starting Column	Length	Example of Data	Comments
PROB	1	3	N/A	Probability (01-99, N/A)
SOL	7	3	N/A	Solution Identifier (A, B, C, E, N/A)
LATITUDE	12	8	28 25.6N	
LONGITUDE	21	9	100 12.3W	
DETECT TIME	32	11	15 0045 FEB	
SAT	45	3	S3	

SOURCE	50	6	SSE	
SRR	58	6	CGD07	
/	64	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	65	6	(blank)	

Sample Message Type 161 Beacon Decode Data Block: See Message type 160.

Sample Message Type 161 Beacon Registration Data Block: See Message type 160

Sample Message Type 161 Support Data Block:

```
************************  SUPPORTING INFORMATION  ************************

USMCC PROCESSING TIME: 15 0104 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
        AFRCC, CGD08, CGD07

ALERT MESSAGES FOR THIS BEACON PREVIOUSLY SENT TO: N/A


PREVIOUS PASS INFORMATION: N/A


NEXT TIME BEACON SHOULD BE DETECTED:

SOL  DETECT TIME  SAT  SOURCE  VISIBILITY
A    15 0200 FEB  S3   SSE     HIGH
A    15 0239 FEB  C4   OSE     LOW (WILL NOT COUNT AS MISSED PASS)
B    15 0200 FEB  S3   SSE     HIGH
B    15 0240 FEB  C6   TX1     HIGH

QQQQ
/LASSIT
/ENDMSG
```

Sample Message Type 161 Support Data Block:

Field Header	Starting Column	Length	Example of Data	Comments
USMCC PROCESSING TIME:	24	11	15 0104 FEB	
THIS ALERT MESSAGE IS BEING SENT TO:				
	9	60	AFRCC, CGD08, CGD07	Data always starts on line following header
ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO: N/A				
	9	60	N/A	Data always starts on line following header.
PREVIOUS PASS INFORMATION: N/A				
	9	60	N/A	Data always starts on line following header.

NEXT TIME SIGNAL(S) SHOULD BE DETECTED:				
SOL	1	3	A	
DETECT TIME	6	11	15 0200 FEB	
SAT	19	3	S3	
SOURCE	24	6	SSE	
VISIBILITY	32	35	HIGH	

406 Beacon Located First Alert Update (Ambiguity Unresolved)

Message Type 162: The Message Administration Block contains information as described for messages in the Cospas-Sarsat Standard Interface Description for messages. It also contains the plain language title of the message.

Sample Message Type 162 Administration Block:

```
/62146 00000/3660/98 046 0105
/162/366M


*******  406 BEACON LOCATED FIRST ALERT UPDATE (AMBIGUITY UNRESOLVED) ********

BEACON ID: ADCD0 16672 C0401             SITE ID: 73326
```

Field Header	Starting Column	Length	Example of data	Comments
/	1	1	/	Message Header field delimiter
None	2	5	62146	Current Message Number
None	8	5	00000	Original message number
/	13	1	/	
None	14	4	3660	Message originator code

/	18	1	/	
None	19	11	98 015 0105	Year (2 digits); Julian Date; Time
/	1	1	/	
None	2	3	162	Message Type
/	5	1	/	
None	6	4	366M	Message destination code
Beacon ID	12	17	ADCD0 16672 C0401	
Site ID	51	28	73326	

Sample Message Type 162 Alert Data Block:

```
***************  DETECTION TIME AND POSITIONS FOR THE BEACON  **************

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE  SRR   /BUFFER
90    A    28 25.6N 100 12.3W  15 0045 FEB  S3   SSE     CGD08 /AFRCC
10    B    28 35.6N 072 18.3W  15 0045 FEB  S3   SSE     CGD07

or

N/A   E    28 34.5N 072 12.3W  15 0045 FEB  S3   SSE     CGD07
```

Field Header	Starting Column	Length	Example of Data	Comments
PROB	1	3	N/A	Probability (01-99, N/A)
SOL	7	3	N/A	Solution Identifier (A, B, C, E, N/A)
LATITUDE	12	8	28 25.6N	
LONGITUDE	21	9	100 12.3W	
DETECT TIME	32	11	15 0045 FEB	
SAT	45	3	S3	

SOURCE	50	6	SSE	
SRR	58	6	CGD08	
/	64	1	/	Only used when there is data in the BUFFER field
BUFFER	65	6	AFRCC	

Sample Message Type 162 Beacon Decode Data Block: See Message Type 160.

Sample Message Type 162 Beacon Registration Data Block: See Message Type 160.

Sample Message Type 162 Support Data Block:

```
**************************  SUPPORTING INFORMATION  ************************

USMCC PROCESSING TIME: 15 0104 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
        AFRCC, CGD08, CGD07

ALERT MESSAGES FOR THIS BEACON PREVIOUSLY SENT TO:
        AFRCC, CGD08, CGD07

PREVIOUS PASS INFORMATION:

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE  SRR   /BUFFER
50    A    28 25.6N 100 12.3W  15 0045 FEB  S3   SSE     CGD08 /AFRCC
50    B    28 35.6N 072 18.3W  15 0045 FEB  S3   SSE     CGD07


NEXT TIME BEACON SHOULD BE DETECTED:

SOL  DETECT TIME  SAT  SOURCE  VISIBILITY
A    15 0200 FEB  S3   SSE     HIGH
A    15 0239 FEB  C4   OSE     HIGH
B    15 0200 FEB  S3   SSE     HIGH
B    15 0240 FEB  C6   TX1     HIGH


QQQQ
/LASSIT
/ENDMSG
```

Field Header	Starting Column	Length	Example of Data	Comments
USMCC PROCESSING TIME:	24	11	15 0104 FEB	
THIS ALERT MESSAGE IS BEING SENT TO:				
	9	60	AFRCC, CGD08, CGD07	Data always starts on line following header
ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:				

	9	60	AFRCC, CGD08, CGD07	Data always starts on line following header.
PREVIOUS PASS INFORMATION:				
PROB	1	3	50	
SOL	7	3	A	Solution Identifier (A, B, C, E, N/A)
LATITUDE	12	8	28 25.6N	
LONGITUDE	21	9	100 12.3W	
DETECT TIME	32	11	15 0045 FEB	
SAT	45	3	S3	
SOURCE	50	6	SSE	
SRR	58	6	CGD07	
/	64	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	65	6	(blank)	
NEXT TIME SIGNAL(S) SHOULD BE DETECTED:				
SOL	1	3	A	
DETECT TIME	6	11	15 0200 FEB	
SAT	19	3	S3	
SOURCE	24	6	SSE	
VISIBILITY	32	35	HIGH	

406 Beacon Position Conflict Alert (Ambiguity Unresolved)

Message Type 163: The Message Administration Block contains information as described for messages in the Cospas-Sarsat Standard Interface Description for messages. It also contains the plain language title of the message.

Sample Message Type 163 Administration Block:

```
/62150 00000/3660/98 047 1810
/163/366H


********  406 BEACON POSITION CONFLICT ALERT (AMBIGUITY UNRESOLVED) **********

BEACON ID: ADCD0 16672 C0401             SITE ID: 71423
```

Field Header	Starting Column	Length	Example of data	Comments
/	1	1	/	Message Header field delimiter
None	2	5	62150	Current Message Number
None	8	5	00000	Original message number
/	13	1	/	
None	14	4	3660	Message originator code

/	18	1	/	
None	19	11	98 047 1810	Year (2 digits); Julian Date; Time
/	1	1	/	
None	2	3	163	Message Type
/	5	1	/	
None	6	4	366H	Message destination code
Beacon ID	12	17	ADCD0 16672 C0401	
Site ID	51	28	71243	

Sample Message Type 163 Alert Data Block:

```
****** POSITION DIFFERENCES OF MORE THAN 50 KMS EXIST FOR THIS BEACON  ******

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE  SRR   /BUFFER
90    A    23 25.6N 169 12.3W  16 1759 FEB  S3   CA2     CGD14
10    B    26 35.6N 121 16.9W  16 1759 FEB  S3   CA2     PACAR

or

N/A   E    28 34.5N  072 12.3W  15 0045 FEB  S3   SSE     CGD07
```

Field Header	Starting Column	Length	Example of Data	Comments
PROB	1	3	90	Probability (01-99, N/A)
SOL	7	3	A	Solution Identifier (A, B, C, E, N/A)
LATITUDE	12	8	23 25.6N	
LONGITUDE	21	9	169 12.3W	
DETECT TIME	32	11	16 1759 FEB	
SAT	45	3	S3	

SOURCE	50	6	CA2	
SRR	58	6	CGD14	
/	64	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	65	6	(blank)	

Sample Message Type 163 Beacon Decode Data Block: See Message Type 160.

Sample Message Type 163 Beacon Registration Data Block: See Message Type 160.

Sample Message Type 163 Support Data Block:

```
************************  SUPPORTING INFORMATION  ************************

USMCC PROCESSING TIME: 16 1809 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
        PACAR, CGD14, AFRCC, CGD13

ALERT MESSAGES FOR THIS BEACON PREVIOUSLY SENT TO:
        PACAR, CGD14, AFRCC, CGD13

PREVIOUS PASS INFORMATION:

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE  SRR   /BUFFER
50    A    23 23.4N 123 23.3W  16 1700 FEB  S3   TX1     PACAR
50    B    24 26.3N 098 45.7W  16 1700 FEB  S3   TX1     AFRCC
80    A    18 57.9N 167 23.6W  16 1734 FEB  C6   HI1     CGD14
20    B    39 45.9N 134 56.4W  16 1734 FEB  C6   HI1     CGD13

NEXT TIME BEACON SHOULD BE DETECTED: N/A


QQQQ
/LASSIT
/ENDMSG
```

Sample Message Type 163 Support Data Block:

Field Header	Starting Column	Length	Example of Data	Comments
USMCC PROCESSING TIME:	24	11	16 1809 FEB	
THIS ALERT MESSAGE IS BEING SENT TO:				
	9	60	PACAR, CGD14, AFRCC, CGD13	Data always starts on line following header
ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:				
	9	60	PACAR, CGD14, AFRCC, CGD13	Data always starts on line following header.
PREVIOUS PASS INFORMATION:				
PROB	1	3	50	
SOL	7	3	A	Solution Identifier (A, B, C, E, N/A)
LATITUDE	12	8	23 23.4N	
LONGITUDE	21	9	123 23.3W	
DETECT TIME	32	11	16 1700 FEB	
SAT	45	3	S3	
SOURCE	50	6	TX1	
SRR	58	6	PACAR	
/	64	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	65	6	(blank)	
NEXT TIME SIGNAL(S) SHOULD BE DETECTED: N/A				SINCE THERE IS A CONFLICT WITH THE POSITION, THE NEXT PSAS CANNOT BE PREDICTED.

406 Beacon Notification of Ambiguity Resolution

Message Type 164: The Message Administration Block contains information as described for messages in the Cospas-Sarsat Standard Interface Description for messages. It also contains the plain language title of the message.

Sample Message Type 164 Administration Block:

```
/61243 00000/3660/98 048 0615
/164/366S


*************** 406 BEACON NOTIFICATION OF AMBIGUITY RESOLUTION  *************

BEACON ID: ADCD1 76322 C0801             SITE ID: 73321
```

Field Header	Starting Column	Length	Example of data	Comments
/	1	1	/	Message Header field delimiter
None	2	5	62143	Current Message Number
None	8	5	00000	Original message number
/	13	1	/	
None	14	4	3660	Message originator code

/	18	1	/	
None	19	11	98 048 0615	Year (2 digits); Julian Date; Time
/	1	1	/	
None	2	3	164	Message Type
/	5	1	/	
None	6	4	366S	Message destination code
Beacon ID	12	17	ADCD1 76322 C0801	
Site ID	51	28	73321	

Sample Message Type 164 Alert Data Block:

```
***************  AMBIGUITY RESOLVED TO THE FOLLOWING POSITION  **************

LATITUDE LONGITUDE  DURATION  PASSES  SRR   /BUFFER
38 45.5N 076 56.9W  001.5 HRS 003     AFRCC

***********  AMBIGUITY RESOLVED FROM THE FOLLOWING NEW INFORMATION  *********

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE
N/A   E    38 43.2N 076 52.3W  17 0545 FEB  S3   PR1
```

Field Header	Starting Column	Length	Example of Data	Comments
Ambiguity resolved to the following position				
LATITUDE	1	8	38 45.5N	
LONGITUDE	10	9	076 56.9W	
DURATION	21	9	001.5 HRS	
PASSES	31	3	003	
SRR	39	6	AFRCC	
/	45	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	46	6	(blank)	
Ambiguity resolved from the following new information				
PROB	1	3	N/A	
SOL	7	3	E	ENCODED LOCATION
LATITUDE	12	8	38 43.2N	
LONGITUDE	21	9	076 52.3W	
DETECTION TIME	32	11	17 0545 FEB	
SAT	45	3	S3	
SOURCE	50	6	PR1	

Sample Message Type 164 Beacon Decode Data Block: See Message Type 160.

Sample Message Type 164 Beacon Registration Data Block: See Message Type 160.

Sample Message Type 164 Support Data Block:

```
**********************  SUPPORTING INFORMATION  **************************

USMCC PROCESSING TIME: 17 0613 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
        AFRCC, LANTAR

ALERT MESSAGES FOR THIS BEACON PREVIOUSLY SENT TO:
        AFRCC, LANTAR

PREVIOUS PASS INFORMATION:

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE  SRR   /BUFFER
50    A    38 42.4N 077 00.3W  17 0430 FEB  S4   SSE     LANTAR


NEXT TIME BEACON SHOULD BE DETECTED:

SOL  DETECT TIME  SAT  SOURCE  VISIBILITY
C    17 0713 FEB  S3   SSE     HIGH
C    17 0824 FEB  S3   OSE     HIGH


QQQQ
/LASSIT
/ENDMSG
```

Field Header	Starting Column	Length	Example of Data	Comments
USMCC PROCESSING TIME:	24	11	17 0613 FEB	
THIS ALERT MESSAGE IS BEING SENT TO:				
	9	60	AFRCC, LANTAR	Data always starts on line following header
ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:				
	9	60	AFRCC, LANTAR	Data always starts on line following header.

PREVIOUS PASS INFORMATION:				
PROB	1	3	50	
SOL	7	3	A	Solution Identifier (A, B, C, E, N/A)
LATITUDE	12	8	38 42.4N	
LONGITUDE	21	9	077 00.3W	
DETECT TIME	32	11	17 0430 FEB	
SAT	45	3	S4	
SOURCE	50	6	SSE	
SRR	58	6	LANTAR	
/	64	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	65	6	(blank)	
NEXT TIME SIGNAL(S) SHOULD BE DETECTED:				
SOL	1	3	C	
DETECT TIME	6	11	17 0713 FEB	
SAT	19	3	S3	
SOURCE	24	6	SSE	
VISIBILITY	32	35	HIGH	

406 Beacon Composite Position Update; or
406 Beacon Composite Update with Position Conflict

Message Type 165: The Message Administration Block contains information as described for messages in the Cospas-Sarsat Standard Interface Description for messages. It also contains the plain language title of the message.

Sample Message Type 165 Administration Block:

```
/62146 00000/3660/98 046 0105
/165/366M


********************  406 BEACON COMPOSITE POSITION UPDATE  *****************
OR
*************  406 BEACON COMPOSITE UPDATE WITH POSITION CONFLICT  ***********

BEACON ID: ADCD0 16672 C0401              SITE ID: 73326
```

Field Header	Starting Column	Length	Example of data	Comments
/	1	1	/	Message Header field delimiter
None	2	5	62146	Current Message Number
None	8	5	00000	Original message number
/	13	1	/	
None	14	4	3660	Message originator code

/	18	1	/	
None	19	11	98 015 0105	Year (2 digits); Julian Date; Time
/	1	1	/	
None	2	3	165	Message Type
/	5	1	/	
None	6	4	366M	Message destination code
Beacon ID	12	17	ADCD0 16672 C0401	
Site ID	51	28	73326	

Sample Message Type 165 Alert Data Block:

```
********************   POSITION UPDATED TO THE FOLLOWING  *******************

LATITUDE LONGITUDE  DURATION  PASSES  SRR   /BUFFER
64 12.8N 149 23.0W  014.3 HRS 006     AKRCC

*****************  POSITION UPDATED FROM THE FOLLOWING ALERT  ***************
OR
*** COMPOSITE POSITION DIFFERS BY MORE THAN 50 KM FROM THE FOLLOWING ALERT***

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE
10    B    64 13.6N 149 24.1W  17 1151 FEB  S3   CMCC
N/A   E    64 12.2N 149 23.3W  17 1151 FEB  S3   CMCC
```

Field Header	Starting Column	Length	Example of Data	Comments
Position updated to the following				
LATITUDE	1	8	64 12.8N	
LONGITUDE	10	9	149 23.0W	
DURATION	21	9	014.3 HRS	
PASSES	31	3	006	
SRR	39	6	AKRCC	
/	45	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	46	6	(blank)	
Position updated from the following Alert				
PROB	1	3	10	
SOL	7	3	B	
LATITUDE	12	8	64 13.6N	
LONGITUDE	21	9	149 24.1w	
DETECTION TIME	32	11	17 1151 FEB	
SAT	45	3	S3	
SOURCE	50	6	CMCC	

Sample Message Type 165 Beacon Decode Data Block: See Message Type 160.

Sample Message Type 165 Support Data Block:

```
*************************  SUPPORTING INFORMATION  ************************

USMCC PROCESSING TIME: 17 1143 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
        AFRCC

ALERT MESSAGES FOR THIS BEACON PREVIOUSLY SENT TO:
        AFRCC, CGD08, CGD07

PREVIOUS PASS INFORMATION:

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE  SRR   /BUFFER
50    A    64 12.9N 148 23.3W  17 1023 FEB  S3   AK1     AKRCC
90    A    64 11.9N 152 11.9W  17 0400 FEB  S4   CMCC    AKRCC

NEXT TIME BEACON SHOULD BE DETECTED:

SOL  DETECT TIME  SAT  SOURCE  VISIBILITY
C    17 1300 FEB  C6   AK1     HIGH
C    17 1539 FEB  S4   AK1     HIGH


QQQQ
/LASSIT
/ENDMSG
```

Sample Message Type 165 Support Data Block:

Field Header	Starting Column	Length	Example of Data	Comments
USMCC PROCESSING TIME:	24	11	17 1143 FEB	
THIS ALERT MESSAGE IS BEING SENT TO:				
	9	60	AFRCC	Data always starts on line following header
ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:				
	9	60	AFRCC, CGD08, CGD07	Data always starts on line following header.
PREVIOUS PASS INFORMATION:				
PROB	1	3	50	
SOL	7	3	A	Solution Identifier (A, B, C, E, N/A)
LATITUDE	12	8	64 12.9N	
LONGITUDE	21	9	148 23.3W	
DETECT TIME	32	11	17 1023 FEB	
SAT	45	3	S3	
SOURCE	50	6	AK1	
SRR	58	6	AKRCC	
/	64	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	65	6	(blank)	
NEXT TIME SIGNAL(S) SHOULD BE DETECTED:				
SOL	1	3	C	
DETECT TIME	6	11	17 1300 FEB	
SAT	19	3	C6	
SOURCE	24	6	AK1	
VISIBILITY	32	35	HIGH	

406 Beacon Missed Pass/Site Status Report

Message Type 166: The Message Administration Block contains information as described for messages in the Cospas-Sarsat Standard Interface Description for messages. It also contains the plain language title of the message.

Sample Message Type 166 Administration Block:

```
/61243 00000/3660/98 048 1330
/166/366A


*****************  406 BEACON MISSED PASS/SITE STATUS REPORT  ***************

BEACON ID: ADCD0 16672 C0401            SITE ID: 73321 (OPEN)
                                                       (CLOSED - TIME)
                                                       (CLOSED - MISSED PASS)
```

Field Header	Starting Column	Length	Example of data	Comments
/	1	1	/	Message Header field delimiter
None	2	5	62143	Current Message Number
None	8	5	00000	Original message number
/	13	1	/	
None	14	4	3660	Message originator code

/	18	1	/	
None	19	11	98 048 1330	Year (2 digits); Julian Date; Time
/	1	1	/	
None	2	3	166	Message Type
/	5	1	/	
None	6	4	366A	Message destination code
Beacon ID	12	17	ADCD0 16672 C0401	
Site ID	51	28	73321 (OPEN)	Site Status provided in parenthesis

Sample Message Type 166 Alert Data Block **for Missed Pass message**:

```
**************************  CURRENT ACTIVE SITE  *************************

LATITUDE LONGITUDE  DURATION  PASSES  SRR   /BUFFER  MP
64 12.8N 149 23.0W  014.3 HRS 006     AKRCC          1

OR

SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE  SRR   /BUFFER  MP
A    64 13.6N 149 24.1W  17 1151 FEB  S3   CMCC    AKRCC          1
B    68 12.2N 119 23.3W  17 1151 FEB  S3   CMCC    CMCC           2

************ ABOVE BEACON WAS NOT DETECTED DURING THE FOLLOWING PASS  *******

DETECT TIME  SAT  SOURCE
17 1300 FEB  C6   AK1
```

Sample Message Type 166 Alert Data Block **for Site Closure due to Time message**:

```
**************************  CURRENT ACTIVE SITE  *************************

LATITUDE LONGITUDE  DURATION  PASSES  SRR   /BUFFER  MP
64 12.8N 149 23.0W  014.3 HRS 006     AKRCC          1

OR

SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE  SRR   /BUFFER  MP
A    64 13.6N 149 24.1W  17 1151 FEB  S8   FMCC    AKRCC          0
B    68 12.2N 119 23.3W  17 1151 FEB  S8   FMCC    CMCC           2

OR

SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE  SRR   /BUFFER  MP
U    N/A      N/A        16 1151 SEP  S7   FMCC    AKRCC          0

************ ABOVE BEACON WAS NOT DETECTED DURING THE FOLLOWING PASS  *******

DETECT TIME  SAT  SOURCE
NA           NA   NA
```

Sample Message Type 166 Alert Data Block:

Field Header	Starting Column	Length	Example of Data	Comment
Current Active Site				
LATITUDE	1	8	64 12.8N	
LONGITUDE	10	9	149 23.0W	
DURATION	21	11	014.3	
PASSES	31	3	006	
SRR	39	6	AKRCC	
/	45	1	/	Only used when there is data in the BUFFER field
BUFFER	46	6	AFRCC	
MP	54	4	1	Number of missed passes
OR				
SOL	1	3	A	Solution Identifier (A, B, C, E, U)
LATITUDE	6	8	64 13.6N	N/A if unlocated
LONGITUDE	15	9	149 24.1W	N/A if unlocated
DETECT TIME	26	11	17 1151 FEB	
SAT	39	3	S8	
SOURCE	44	6	CMCC	
SRR	52	6	AKRCC	
/	58	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	59	6	(blank)	
MP	67	4	1	Number of missed passes
Above beacon was not detected during the following pass				
DETECT TIME	1	11	17 1300 FEB	NA if Site Closed due to Time
SAT	14	3	C6	NA if Site Closed due to Time
SOURCE	19	6	AK1	NA if Site Closed due to Time

Sample Message Type 166 Support Data Block:

```
*************************  SUPPORTING INFORMATION  ************************

USMCC PROCESSING TIME: 17 1330 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
        AFRCC

ALERT MESSAGES FOR THIS BEACON PREVIOUSLY SENT TO:
        AFRCC, CMCC

PREVIOUS PASS INFORMATION:

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE  SRR   /BUFFER
50    A    64 12.9N 148 23.3W  17 1023 FEB  S3   AK1     AKRCC
90    A    64 11.9N 152 11.9W  17 0400 FEB  S4   CMCC    AKRCC
N/A   E    64 17.4N 149 23.3W  16 2345 FEB  C4   AK2     AKRCC

NEXT TIME BEACON SHOULD BE DETECTED:

SOL  DETECT TIME  SAT  SOURCE  VISIBILITY
C    17 1539 FEB  C6   AK1     LOW (WILL NOT COUNT AS MISSED PASS)
C    17 1735 FEB  S4   AK1     HIGH

OR
SOL  DETECT TIME  SAT  SOURCE  VISIBILITY
A    17 1539 FEB  C6   AK1     HIGH
A    17 1739 FEB  S4   AK1     LOW (WILL NOT COUNT AS MISSED PASS)
B    17 1539 FEB  C6   AK1     HIGH
B    17 1739 FEB  S4   AK1     HIGH

QQQQ
/LASSIT
/ENDMSG
```

Field Header	Starting Column	Length	Example of Data	Comments
USMCC PROCESSING TIME:	24	11	17 1330 FEB	
THIS ALERT MESSAGE IS BEING SENT TO:				
	9	60	AFRCC	Data always starts on line following header
ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:				

	9	60	AFRCC, CMCC	Data always starts on line following header.
PREVIOUS PASS INFORMATION:				
PROB	1	3	50	
SOL	7	3	A	Solution Identifier (A, B, C, E, U, N/A)
LATITUDE	12	8	64 12.9N	
LONGITUDE	21	9	148 23.3W	
DETECT TIME	32	11	17 1023 FEB	
SAT	45	3	S3	
SOURCE	50	6	AK1	
SRR	58	6	AKRCC	
/	64	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	65	6	(blank)	
NEXT TIME SIGNAL(S) SHOULD BE DETECTED:				
SOL	1	3	A	
DETECT TIME	6	11	17 1539 FEB	
SAT	19	3	C6	
SOURCE	24	6	AK1	
VISIBILITY	32	35	LOW (WILL NOT COUNT AS MISSED PASS)	

406 Beacon Detection Update

Message Type 167: The Message Administration Block contains information as described for messages in the Cospas-Sarsat Standard Interface Description for messages. It also contains the plain language title of the message.

Sample Message Type 167 Administration Block:

```
/61243 00000/3660/98 048 1330
/167/366A


**********  406 BEACON DETECTION UPDATE  **********

BEACON ID: ADCD0 16672 C0401            SITE ID: 73321
```

Field Header	Starting Column	Length	Example of data	Comments
/	1	1	/	Message Header field delimiter
None	2	5	62143	Current Message Number
None	8	5	00000	Original message number
/	13	1	/	
None	14	4	3660	Message originator code

/	18	1	/	
None	19	11	98 048 1330	Year (2 digits); Julian Date; Time
/	1	1	/	
None	2	3	167	Message Type
/	5	1	/	
None	6	4	366A	Message destination code
Beacon ID	12	17	ADCD0 16672 C0401	
Site ID	51	28	73321 (OPEN)	

Sample Message Type 167 Alert Data Block:

```
************** DETECTION UPDATE DUE TO FOLLOWING UNLOCATED ALERT ************

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE
N/A   N/A  N/A                 17 1300 FEB  C6   AK1
```

Field Header	Starting Column	Length	Example of Data	Comments
PROB	1	3	N/A	Probability (01-99, N/A)
SOL	7	3	N/A	Solution Identifier (A, B, C, E, N/A)
LATITUDE	12	8	N/A	
LONGITUDE	21	9	N/A	
DETECT TIME	32	11	17 1300 FEB	
SAT	45	3	C6	
SOURCE	50	6	AK1	

Sample Message Type 167 Support Data Block:

```
*************************  SUPPORTING INFORMATION  ************************

USMCC PROCESSING TIME: 17 1330 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
        AKRCC

ALERT MESSAGES FOR THIS BEACON PREVIOUSLY SENT TO:
        AKRCC

PREVIOUS PASS INFORMATION:

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE  SRR   /BUFFER
50    A    64 12.9N 148 23.3W  17 1023 FEB  S3   AK1     AKRCC
90    A    64 11.9N 152 11.9W  17 0400 FEB  S4   CMCC    AKRCC
N/A   E    64 17.4N 149 23.3W  16 2345 FEB  C4   AK2     AKRCC

NEXT TIME BEACON SHOULD BE DETECTED:

SOL  DETECT TIME  SAT  SOURCE  VISIBILITY
C    17 1539 FEB  C6   AK1     HIGH
C    17 1739 FEB  S4   AK1     HIGH

OR

SOL  DETECT TIME  SAT  SOURCE  VISIBILITY
A    17 1539 FEB  C6   AK1     HIGH
A    17 1739 FEB  S4   AK1     HIGH
B    17 1539 FEB  C6   AK1     LOW (WILL NOT COUNT AS MISSED PASS)
B    17 1739 FEB  S4   AK1     HIGH


QQQQ
/LASSIT
/ENDMSG
```

Field Header	Starting Column	Length	Example of Data	Comments
USMCC PROCESSING TIME:	24	11	17 1330 FEB	
THIS ALERT MESSAGE IS BEING SENT TO:				
	9	60	AKRCC	Data always starts on line following header

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:				
	9	60	AKRCC	Data always starts on line following header.
PREVIOUS PASS INFORMATION:				
PROB	1	3	50	
SOL	7	3	A	Solution Identifier (A, B, C, E, N/A)
LATITUDE	12	8	64 12.9N	
LONGITUDE	21	9	148 23.3W	
DETECT TIME	32	11	17 1023 FEB	
SAT	45	3	S3	
SOURCE	50	6	AK1	
SRR	58	6	AKRCC	
/	64	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	65	6	(blank)	
NEXT TIME SIGNAL(S) SHOULD BE DETECTED:				
SOL	1	3	C	
DETECT TIME	6	11	17 1539 FEB	
SAT	19	3	C6	
SOURCE	24	6	AK1	
VISIBILITY	32	35	HIGH	

USA 406 Beacon Detected Outside US AOR

Message Type 168: The Message Administration Block contains information as described for messages in the Cospas-Sarsat Standard Interface Description for messages. It also contains the plain language title of the message.

Sample Message Type 168 Administration Block:

```
/61246 00000/3660/98 046 0105
/168/366N


******************  USA 406 BEACON DETECTED OUTSIDE US AOR  *****************

BEACON ID: ADCD0 16672 C0401              SITE ID: 73326
```

Field Header	Starting Column	Length	Example of data	Comments
/	1	1	/	Message Header field delimiter
None	2	5	62146	Current Message Number
None	8	5	00000	Original message number
/	13	1	/	
None	14	4	3660	Message originator code

/	18	1	/	
None	19	11	98 046 0105	Year (2 digits); Julian Date; Time
/	1	1	/	
None	2	3	168	Message Type
/	5	1	/	
None	6	4	366M	Message destination code
Beacon ID	12	17	ADCD0 16672 C0401	
Site ID	51	28	73326	

Sample Message Type 168 Alert Data Block:

```
*****************  DETECTION TIME AND POSITIONS FOR THE BEACON  *************

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE  SRR   /BUFFER
50    A    08 25.6N 097 12.3E  15 0045 FEB  S3   SSE     INMCC
50    B    09 35.6N 147 18.3E  15 0045 FEB  S3   SSE     HKMCC
```

Field Header	Starting Column	Length	Example of Data	Comments
PROB	1	3	N/A	Probability (01-99, N/A)
SOL	7	3	N/A	Solution Identifier (A, B, C, E, N/A)
LATITUDE	12	8	08 25.6N	
LONGITUDE	21	9	097 12.3E	
DETECT TIME	32	11	15 0045 FEB	
SAT	45	3	S3	
SOURCE	50	6	SSE	

SRR	58	6	INMCC	
/	64	1	/	Only used when there is data in the BUFFER field
BUFFER	65	6	HKMCC	

Sample Message Type 168 Beacon Decode Data Block: See Message Type 160.

Sample Message Type 168 Beacon Registration Data Block: See Message Type 160.

Sample Message Type 168 Support Data Block:

```
************************  SUPPORTING INFORMATION  ************************

USMCC PROCESSING TIME: 15 0104 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
        LANTAR, PACAR

ALERT MESSAGES FOR THIS BEACON PREVIOUSLY SENT TO:
        INMCC, HKMCC

PREVIOUS PASS INFORMATION: N/A

NEXT TIME BEACON SHOULD BE DETECTED: N/A


QQQQ
/LASSIT
/ENDMSG
```

Field Header	Starting Column	Length	Example of Data	Comments
USMCC PROCESSING TIME:	24	11	15 0104 FEB	
THIS ALERT MESSAGE IS BEING SENT TO:				
	9	60	LANTAR, PACAR	Data always starts on line following header

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO: N/A				
	9	60	INMCC, HKMCC	Data always starts on line following header.
PREVIOUS PASS INFORMATION: N/A				
	9	60	N/A	Data always starts on line following header.
NEXT TIME SIGNAL(S) SHOULD BE DETECTED: N/A				

Appendix 5

Support Message Structure

1 Narrative Message
2 Alert Query
3 406 Beacon Registration
4 Beacon-LUT Mutual Visibility Schedule

Narrative Messages

[To be developed]

Alert Query

[To be developed]

406 Beacon Registration

[To be developed]

Beacon-LUT Mutual Visibility Schedule

[To be developed]

5 Message Transfer Specifications

5.1 FTP File Naming Specifications

When a message is sent by the USMCC to an RCC or SPOC via File Transfer Protocol (FTP), the associated file shall be named and manipulated as follows.

The FTP file name format shall be "USMCC_?DEST_?CUR#.TXT", where:

- "USMCC" is the Sending MCC Name,
- "?DEST" is the Destination RCC or SPOC Name (as provided in section 5.2)), and
- "?CUR#" is the Current Message Number (Message Field 1).

The FTP file name shall contain only upper case characters. For example, a file with the name "USMCC_CGD07_02345.TXT" contains Current Message Number 02345 sent by the USMCC to CGD07.

The USMCC shall write a file with a file name extension of ".TMP" on the designated FTP server/directory for the receiving RCC or SPOC. A file is given a temporary name to prevent the receiving RCC or SPOC from processing a file before it is complete. Once the file transfer is complete, the USMCC shall rename the file with an extension ".TXT". Once the file has been renamed, the USMCC shall not manipulate the file. The receiving RCC or SPOC shall not process files with an extension of ".TMP". The receiving RCC or SPOC shall be responsible for disposing of files placed on the designated FTP server/directory. If the receiving RCC or SPOC detects an anomalous condition in the FTP file transfer, it shall notify the USMCC.

5.2 FTP File Destination names

As specified in section 5.1, the following destination names shall be used when a file is sent via FTP: AFRCC , CGD01, CGD07, CGD08, CGD09, CGD13, CGD14, CGD17, LANTAREA, MARSEC, PACAREA or SANJN