APPENDIX A: REFERENCES


C. SPC/SPR Log at USMCC


H. “COSPAS-SARSAT MCC Performance Specifications”, C/S A.005,

I. FTS2000 Mail Service User Guide

J. FTS2000 Packet Switched Service Introductory User Guide

K. MCI Highspeed Asynchronous Interface Global Messaging Services Developer’s Guide


N. Fourth Generation United States Mission Control Center National Rescue Coordination Center (RCC) and SAR Point of Contact (SPOC) Alert and Support Messages 11 September 1997, Version 0.0.

O. Fourth Generation USMCC Operator Interface Screen Display Description Document, July 1997, Revision 0

P. Fourth Generation USMCC Data Structure Document, 1 October 1997, Version 0.1

Q. Sarsat Telemetry and Commanding Procedures, Sarsat TCP Issue 1 - Revision 1,
APPENDIX B: GLOSSARY AND DEFINITIONS

**Active Site**: A Site in the USMCC into which incoming LUT or MCC data can be routed.

**Alert Message**: Messages received from MCCs containing information to be acted on by Search and Rescue forces. (MCC SITs 100 - 199)

**AOS**: Time of acquisition of satellite signal by a LUT.

**Archived Site**: A Site in the USMCC which does not accept new data, and from which Alerts are not be issued.

**Beacon Pass**: The passage of a beacon by a satellite. A beacon Pass is identified by the specific beacon, satellite, and TCA.

**Beacon ID**: Bits 26 - 85 in a coded 406-MHZ distress beacon.

**Closed Site**: A Site in the USMCC into which incoming LUT or MCC data may be matched, but not merged, and from which Alerts are not be issued.

**Composite Site**: A Site with the ambiguity resolved and a composite location formed; the result of the Multiple Pass Merge or the Encoded Data Merge.

**COTS**: Commercial Off-The-Shelf

**CTA**: Central Angle; the angle measured at the center of the Earth between the beacon and the satellite at TCA.

**Default Beacon ID**: Bits 26-85 in a coded 406 MHZ distress beacon with all bits that contain location set to default parameters as per Reference F for location protocol beacons.

**DTE**: Data Terminal Equipment.

**DOC**: Department of Commerce

**ELT**: Emergency Locator Transmitter

**Encoded location**: Location data contained in the National User Protocol, or the Standard or National Location Protocols, in 406-MHZ beacons, as given in Reference F.

**EPIRB**: Emergency Position Indicating Radio Beacon
FA: First Alert

FG-USMCC: Fourth Generation United States Mission Control Center

FRD: Functional Requirements Document

GEO: Geostationary Earth Orbiter

Geosorting: The process of determining the Search and rescue Region for a given location on the Earth.

GMT: Greenwich Mean Time

ICSAR: Interagency Committee on Search and Rescue

IHDB: Incident History Data Base

Incident Data: Data received from LUTs containing information on signals detected by COSPAS-SARSAT satellites.

LAN: Local Area Network

LEO: Low Earth Orbiter

LMDB: LUT Maintenance Data Base

LOS: Time of Loss of satellite signal by a LUT

LUT: US Local User Terminal, including the OSE and SSE (q.v.); See Figure 2.

Match: The process of determining whether two solutions represent the same signal source.

MCC: A Cospas-Sarsat Mission Control Center as listed in the C/S Data Distribution Plan, Reference E, and contained in the GEOSORT Data Base.

Merge: The process of combining two or more solutions to eliminate the image position, and to improve the accuracy of the real position estimate.

MHZ: Megahertz

MID: Maritime Identification Digits
**NESDIS**: National Environmental Satellite, Data, and Information Service

**New Composite Site**: A Site immediately after the ambiguity is resolved.

**New Site**: A Site number and storage location assigned in the Active Site File to hold data from a beacon for which no other Site match was found.

**New Single Site**: A New Site at 121.5/243-MHZ holding a New Single Pass Solution for which no Multiple Pass Match was found.

**NOAA**: National Oceanic and Atmospheric Administration

**NOCR**: Notification of Country of Registration (SIT 133)

**OSE**: Operational Support Equipment

**PCR**: Pass Completion Report

**PDS**: Pulse Data Stream; Digitally encoded 406-MHZ data transmitted from the C/S spacecraft.

**RCC**: Rescue Coordination Center

**Revised Single Hit Site**: A Single Hit Site that has been revised by the to incorporate data from the pass or Pass already in the site, but from a different LUT.

**Revised Multiple Hit Site**: A Multiple Hit Site that has been revised to incorporate data from a pass or Pass already in the site but from a different LUT.

**Rollover Time**: The time at which the SARSAT on-board time counter goes to zero.

**SA**: Service Area

**SAMS**: Self-test And Monitoring System

**SD**: Standard Deviation

**Single Pass Site**: A set of merged Doppler Data Items.

**Single Pass Solution**: The A- and B- solution data within a Single Pass Site.

**Site**: A signal source identified by a site number within the FG USMCC.
**Single Hit Site:** A Single Pass Site.

**Solution:** Information derived from satellite Doppler data consisting of (1) A and B locations (2) frequency bias, (3) A-side probability, and possibly other data on the signal source, such as sweep rate, location accuracy estimates, curve fit parameters.

**SPOC:** A SAR Point of Contact, as listed in the C/S Data Distribution Plan, Reference E, and contained in the USMCC GEOSORT Data Base.

**SRR:** Search and Rescue Region; the SAR Area designation returned by the GEOSORT for the relevant location is usually a SRR;

**SSE:** System Support Equipment.

**TCA:** Time of closest approach of satellite to beacon.

**TCAL:** Time Calibration

**TPC:** Time of processing complete at a LUT

**US SRR:** A U. S. Coast Guard or US Air Force Rescue Coordination Center, as specified in the United States National Search and Rescue Plan, and contained in the GEOSORT Data Base.
APPENDIX C: FORMATS FOR ALERT MESSAGES TO SAR DESTINATIONS WITHIN US MCC SERVICE AREA

Please Refer to Reference N for Message Formats
### APPENDIX D: LUT PASS SCHEDULE FORMAT

Pass Schedule STATUS generated at: 1996-09-16 00:35:06

<table>
<thead>
<tr>
<th>LUT SAT/ORBIT</th>
<th>DY</th>
<th>AOS</th>
<th>LOS</th>
<th>OPT</th>
<th>VER</th>
<th>STATUS</th>
<th>TIME</th>
<th>123 406 OrbTst</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSE C6 27636</td>
<td>15</td>
<td>0006</td>
<td>0018</td>
<td>SUPP</td>
<td>V</td>
<td>DONE</td>
<td>00:45:30</td>
<td>9 15 29 14</td>
</tr>
<tr>
<td>OSE S4 41114</td>
<td>15</td>
<td>0027</td>
<td>0036</td>
<td>FORCE</td>
<td>V</td>
<td>DONE</td>
<td>02:34:38</td>
<td>13 1 1 0</td>
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<tr>
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<td>15</td>
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<td>0037</td>
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<td>V</td>
<td>DONE</td>
<td>00:45:30</td>
<td>9 15 29 14</td>
</tr>
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<td>0403</td>
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<td>0615</td>
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<td>DONE</td>
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<td>15</td>
<td>0721</td>
<td>0728</td>
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<td>DONE</td>
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<td>4 0 0 0</td>
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<td>0800</td>
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APPENDIX E: BEACON VISIBILITY SCHEDULE FORMAT

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</table>
APPENDIX F: MORNING REPORT 406 INFORMATION SHEET FORMAT

*** BEACON INFO: ADCD04DF7CC0801 *** REC: 53110  DATE: 18-09-96

1. GENERAL LOCATION  PORT: (Unlocated with Registration - Home Port)
2. MID COUNTRY/SRR(S)  USA / SOUTHJ
3. LAT/LONG LOCATION(S)  13 24.0N 083 30.9W
4. GEO DETECT/RCVD/SRC  G8 17 1416 / 17 1417 / SPMCC
                          G8 17 1416 / 17 1439 / CMCC
                          G9 17 1416 / 17 1435 / CMCC
5. LEO UNLOC DETECT/RCVD  S4-17 1417 / 17 1426
6. FA TCA/RCVD/COMP TCA  S4-17 1416 / 17 1432 / 17 1421
7. PASSES/DURATION/BLOWN  10 PASSES/8.0 HRS/1 BLOWN
8. REG DATE/DATA USED/VSL  15 JUL 1992/(Operator Provided) /GULF KING 9
9. BEACON MAKE/MODEL  ALDEN / SATFIND M3
10. COMMENTS: (Operator Provided)
APPENDIX G: DATA COLLECTION FORMATS FOR OFFLINE DATA BASES AND PROCESSES

TRAILER

The TRAILER record is written at the end of the file each time data are placed in it for downloading. It consists of four fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>%s TRAILER</td>
<td>Constant character string ‘TRAILER’.</td>
</tr>
<tr>
<td>%S file_type</td>
<td>Identifier of downloaded file; must be one of the following: INSTAT, OUTSTAT, PASSACT, PSCHED, ORBGRAPH, ACT123, ACT406, ALRT123, ALRT406.</td>
</tr>
<tr>
<td>%1d last_status_rec</td>
<td>Last Input Status record number written; not used by SAMS.</td>
</tr>
<tr>
<td>%s dnl_timet</td>
<td>Time that TRAILER was written, in the form YYDDHHMM, where DDD is the Julian Day of year E; and HH, MM are the UTC hour and minute. Note that January 1 is Julian Day 1.</td>
</tr>
</tbody>
</table>

INSTAT.SAM

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>%s message_name</td>
<td>Character string designating type of incoming message. If message is a solution file, the message_name must be LTSOL121 for 121.5-MHz solution file LTSOL243 for 243-MHz solution file LTSOL24K for 2.4 KB 406 solution file LTSOLINF for 406-MHz interferer solution file</td>
</tr>
<tr>
<td>%s message_source</td>
<td>Character string designating source of incoming message. The US 2nd Generation LUTs are designated as: OSE, SSE, AK1, AK2, CA1, CA2, HI1, HI2, TX1, TX2, GU1, GU2, PR1, PR2.</td>
</tr>
<tr>
<td>%s message_status</td>
<td>I = message incomplete N = narrative message (not fixed format) H = hold F = finished processing U = duplicate solution file X = not yet processed</td>
</tr>
<tr>
<td>%1d IS_rec_num</td>
<td>Input Status record number:</td>
</tr>
<tr>
<td>%1d is_rec_num</td>
<td>Incident status record number. This is a number assigned to be unique to the processing</td>
</tr>
</tbody>
</table>
of all data from a given LUT and pass.

%c in_flag 1 = this is an input from a foreign MCC that is used with more than one incident status record number.

0 = not associated with more than one in_rec_num.

%ld time_received This field is the time the message was received at the MCC, unless the message_name is in the form <....>; in which case it is the time that time_MPC (see below) was recorded in INSTAT.

%ld time_LPC If message_name is LTSOL121, LTSOL243, LTSOL24K or LTSOLINF, this field is the time LUT processing completed; otherwise it is 0 (zero).

%ld time_MPC If message_name is in the form <....>, this field is the time that MCC processing of the inputs with the same value of is_rec_num was completed; otherwise it is 0 (zero).

**OUTSTAT.SAM**

%s message_name Alerts must start with ALRT, followed by identifying numbers and letters. All message names may be found in the file MCC.COMR0100. MACLIB(CSMTBL).

%s message_dest Alphanumeric message destination;

%d message_length Approximate length of message, in bytes.

%s message_status Three character message status code:

FIRST CHARACTER
S if sent
R if error in send
Q if error in queue on send
U if duplicate send
H if held on input (see INSTAT)
E if experimental (test) message
N if not sent.

SECOND CHARACTER
S if via SARNET (NOAA in-house line)
F if FTSNET
P if SPRINT

THIRD CHARACTER
H if X.25 host
P if X.25 pad
V if X25 hpvc
C if X.25 ppvc
F if EMAIL FAX
T if EMAIL TELEX
X if EMAIL X.25 Direct Dial Delivery
D if EMAIL Direct Dial to Printer

%ld message_num  Current message number, assigned by MCC sequentially to destination.  999999 if message was generated but not sent.
%ld num_sends  Number of times message was sent successfully
%ld OS_rec_num  Output Status record number;
%ld IS_rec_num  Input Status record number;
%ld is_rec-num  Incident status record number (see INSTAT); zero if no processing.
%ld time_sent  Time message was LAST sent by the USMCC; 999999999 (nine nines) if created but not sent.
%ld time_created  Time message was created by USMCC

**ORBGRAPH.SAM**

% rec_type  Record type code, as follows:
  If from US LUT
    L if PDS location record
    M if Bent Pipe location record
    D if PDS detect-only record
    E if Bent Pipe detect-only record
  If from other than US LUT
    B if PDS location record
    C if Bent Pipe location record.
%s beacon_id  Beacon id in form of 15 hex characters.
%ld t_start  Start of the doppler curve; calculated as the time of the first point on the curge minus the TCA, in seconds (negative if first point preceeds TCA); 9999 if rec_type is D or E.
%ld orbit_num  Orbit number on which LUT received data dump
%ld A_prob  Probability that the A solution is the real solution, percent; 999 if rec_type is D or E.
%d npts Number of points on the Doppler curve.

%d duration Duration of curve; calculated as time of the last point, minus time of the first point; 999 if rec_type is D or E.

%s sat_id Satellite id: S2, S3, S4, S5,...; C4, C5, C6, ... .

%s lut_id ID for one of the US LUTs or for the USMCC, as follows: SCO, OSE, SSE, AK1, AK2, CA1, CA2, HI1, HI2, TX1, TX2, GU1, GU2, PR1, PR2, USM..

A-Solution

%1d A_tca A-solution time of closest approach of satellite to becon, as calculated by LUT; nine 9's if rec_type is D or E.

%f A_cta A-solution central angle at TCA, in tenths of a degree, in the range -999 to +999 (no decimal), positive to the left of the track; 999 if rec_type is D or E.

%f A_lat A-solution latitude, in degrees, in the form +/-xx.xxx, positive in the northern hemisphere; 0.000 if rec_type is D or E.

%f A_lon A-solution longitude, in degrees, in the form +/-xxx.xxx, positive in the eastern hemisphere; 0.000 if rec_type is D or E.

%f A_lat_dev A-solution latitude deviation, in thousandths of a degree (no decimal).

%f A_lon_dev A-solution longitude, in thousandths of a degree (no decimal).

% A_corr A-solution correlation coefficient of latitude and longitude, in the range -99 to +99 (no decimal).

%d A-noise A-solution measurement noise, in Hertz, x10.

Note: The above four fields are 999 if rec_type is D or E

%1d A-bias A-solution frequency bias, in Hertz; 0 if rec_type is D or E.

%d A-bias_dev A-solution frequency bias standard deviation, in Hertz; 999 if rec_type is D or E.

%d A_drift A-solution frequency bias drift rate, in Hertz/min, x10; 99 if rec_type is D or E.

%d A_conv_flag A-solution convergence flag; number of iterations for convergence, if positive, or minus number of iterations before non-convergence, if negative; 0 if rec_type is D or E.
B-Solution

The B-Solution variables are the same as the A-Solution variables above, with “B” in place of “A”.

%ld LUT_calc_time Time solution was calculated by LUT

%ld instat_recno Input Status record number (See INSTAT).

PSCHED.SAM

%s sat_id Satellite id (see ORBGRAPH)

%s lut_id LUT id (see ORBGRAPH)

%ld orbit_num Orbit number of pass

%c no_conflict ‘Y’ indicates that this pass is to be taken without conflict; otherwise ‘N’

%c accept ‘Y’ indicates that this pass is to be taken, and conflicting pass not to be taken; otherwise ‘N’.

%c pcr_next_pass ‘Y’ indicates PCR predicts that this pass will be taken; otherwise ‘N’.

%c low_pass ‘Y’ indicates that this pass is not taken because it has less than 8 minutes above the radio horizon, or for operational reasons related to the LUT or to the satellite.

%c reject ‘Y’ indicates that this pass is rejected because it conflicts with another pass; otherwise ‘N’.

%c pcr_recvd ‘Y’ indicates that a PCR has been received for this pass.

%ld AOS Time of Acquisition of Signal (See E_HORIZON)

%ld LOS Time of Loss of Signal (See E_HORIZON)

%f AZ1 Azimuth at AOS, in tenths of a degree, with no decimal, in the range 0 - 3599.

%f AZ2 Azimuth at LOS, in tenths of a degree, with no decimal, in the range 0 - 3599.

%f max_elangle Maximum elevation angle, in hundredth of a degree, with no decimal, in the range 0-9000.

%f AZ3 Azimuth at TCA, in tenths of a degree, with no decimal, in the range 0 - 3599.
%f subsat_lat1  Latitude of subsatellite point at AOS, in degrees, in the form +/-xx.xxx, positive in northern hemisphere.

%f subsat_lon1  Longitude of subsatellite point at AOS, in degrees, in the form +/-xxx.xxx, positive in eastern hemisphere.

%f subsat_lat2  Latitude of subsatellite point at LOS, in degrees, in the form +/xx.xxx, positive in the northern hemisphere.

%f subsat_lon2  Longitude of subsatellite point at LOS, in degrees, in the form +/- xxx.xxx, positive in the eastern hemisphere.

%c EW_priority East-West priority flag; ‘Y’ indicates high priority.

%ld pass_priority  Pass resolution priority; equal to pass duration times satellite priority.

%c mc_priority Master-Slave priority flag:

   ‘Y’ = high priority;
   ‘N’ = low priority, dual LUT master has scheduled the pass.

%c E_HORIZON  Y = AOS and LOS relative to earth horizontal;
              N = AOS and LOS relative to obstructed horizon.

%c pass_in_spec  Y indicates pass is in specification: currently:

   (1) it has at least 4 minutes of pass visibility above 5 deg above radio (obstructed) horizon, and

   (2) it has at least 8 minutes above the radio horizon;

   N indicates pass is not in specification.

   Condition (2), but not condition (1), disqualifies the pass from being scheduled.

PASSACT.SAM

%s sat_id  Satellite id: (see ORBGRAPH.SAM)

%s lut_id  LUT id: (see ORBGRAPH.SAM)

%ld orbit_num  Orbit number; (see ORBGRAPH.SAM)

%ld act_AOS  Actual time of AOS, as reported by LUT.

%ld act_LOS  Actual time of LOS, as reported by LUT.
%ld  is_rec_num  Incident Status record number: (see INSTAT.SAM)
%ld  time_received  Time PCR received at MCC.

Note:  %ld  time_LPC will be inserted here.

%c  compl_code  Overall pass completion code:
      0  =  pass completed.
      1  =  pass aborted/prepass.
      2  =  pass aborted/realtime.
      3  =  pass aborted/postpass.

%d  calc_duration  Duration of pass, as calculated by LUT, in seconds;
%d  act_duration  Duration of pass, as reported by LUT, in seconds.
%d  lock_time  Number of seconds of signal/receiver lock.
%s  pgm_code  Identification code of any program that failed to terminate.
%c  PM_code  Preventative maintenance code indicator;
      1  =  in PM
      0  =  not in PM.

%ld  epoch  Epoch of orbit vector data.  See SID Annex B, Table B1 MF#34, MF#35, MF#36 for definitions of position and velocity vectors.

%f  x_pos  Satellite x-position, in form +/-xxxx.xxxx KM.
%f  y_pos  Satellite y-position, in form +/-xxxx.xxxx KM.
%f  z_pos  Satellite z_position, in form +/-xxxx.xxxx KM

%f  x_vel  Satellite x_velocity, in form +/-xx.xxxxxxx KM/sec.
%ld  y_vel  Satellite y_velocity, in form +/- xx.xxxxxxx KM/sec.
%f  z_vel  Satellite z_velocity, in form +/-xx.xxxxxxx KM/sec.
%f  pos_diff  Satellite position difference between LUT orbit updates, in KMx10.
%d  mem_status  Pre-pass test status: memory file system:
%d  disc_status  Pre-pass test status: disk file system;
%d ant_status Pre-pass test status: receiver/antenna system;
%d input_status Pre-pass test status: input processor;
%d status_121 121.5-MHz processing status.
%d sols_121 Number of 121.5-MHz solutions.
%d status_243 243.-MHz processing status.
%d sols_243 Number of 243.-MHz solutions.
%d status_406i 406-MHz interferer processing status.
%d sols_406i Number of 406-MHz interferer solutions.
%d status_406 406-MHz processing status.
%d sols_406 Number of 406-MHz solutions.
%d num_unloc Number of 406-MHz beacons not located (id only).
%s next_sat Satellite id of next scheduled pass (see ORBGRAPH.SAM);
%1d next_orbit Orbit number of next scheduled pass;
%1d next_AOS Time of AOS, next scheduled pass;

ACT123.SAM

Master Record
%c rec_type M = Master record type.
%s site_id Site identifier, as per Alert message.
%1d as_recnum Active site master record number.
%c alert_type 0 = not used
    1 = single hit site
    2 = two hit site
    3 = three or more hits
%f  C_lat_dev  Composite solution latitude deviation, in thousandths of a degree (no decimal).
%f  C_lon_dev  Composite solution longitude deviation, in thousandths of a degree (no decimal).
%f  C_corr    Composite solution correlation coefficient of latitude and longitude, in the range -99 to +99 (no decimal).
%ld  C-bias   Composite solution frequency bias, in Hertz.

Note: The preceding six fields are zero (0) if num_sols < 2.

Elemental record:  i = 0, 1, 2, ... num_sols.
%s  Rec_Type[i]  E = elemental record type
%d  Freq_Code[i]  1 = 121.5-MHz
                2 = 243-MHz
                3 = both 121.5-MHz and 243-MHz.
%d  T_Start[i]   Start of the doppler curve; calculated as the time of the first point on the curve minus the TCA, in seconds (negative if first point preceeds TCA).
%ld  Orbit_Num[i]  Orbit number on which LUT received data dump.
%d  A-Prob[i]   Probability that the A solution is the real solution, percent.
%d  Npts[i]  Number of points on the Doppler curve.
%d  Duration[i]  Duration of curve; calculated as time of the last point, minus time of the first point.
%s  Sat_Id[i]  Satellite id: S2, S3, S4, S5,...; C4, C5, C6,...
%ld  LUT_Id[i]  Sum of code values from the table below for all LUTs in the Single Pass Merge that produced this elemental solution.
%ld  MCC_Id[i]  Sum of code values from the table below for all MCCs in the Single Pass Merge that produced this elemental solution.

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</table>

%ld Calc_Time[i]  Time this elemental solution was processed by the USMCC.

**A-solution**

%ld A_Tca[i]  A-solution time of closest approach of satellite to beacon, as calculated by LUT.

%f A_Cta[i]  A-solution central angle at TCA, in tenths of a degree, in the range -999 to +999 (no decimal), positive to the left of the track.

%d A_Stat[i]  Status of Elemental (zero (0) until defined).

%f A_Lat[i]  A-solution latitude, in degrees, in the form +/-xx.xxx, positive in the northern hemisphere.

%f A_Lon[i]  A-solution longitude, in degrees, in the form +/-xxx.xxx, positive in the eastern hemisphere.

% A_Lat_dev[i]  A-solution latitude deviation, in thousandths of a degree (no decimal).
%f A_Lon_dev[i]  A-solution longitude, in thousands of a degree (no decimal).
%
%f A_Corr[i]  A-solution correlation coefficient of latitude and longitude, in the range -99 to +99 (no decimal).
%d A_Noise[i]  A-solution measurement noise in Hertz, x 10.
%d A_Bias[i]  A-solution frequency bias, in Hertz.
%d A_Bias_dev[i]  A-solution frequency bias stand deviation in Hertz, x 10.
% A_Drift[i}  A-solution frequency bias drift rate in Hertz/min, x 10.

B-solution  Same as A-solution with “B” in place of “A”.
%d SNR[i]  Signal to Noise ratio (dB)
%d Sweep_Period[i]  Sweep period in milliseconds if sweep is present, 0 if not present, 566 if interferer.
%d Sweep_Conf[i]  Sweep period confidence score if sweep is present, count of interferer points if interferer, 0 otherwise.
%d Sweep_Shift[i]  Shift of sweep curve, Hz

ACT406.SAM

Master Record
%c rec_type  M = Master record type
%s beacon_id  Beacon ID: 15 char hex beacon code
%ld as_recnum  Active site master record number
%c alert_type  0 = not used
              1 = single hit site
2 = two hit site
3 = three or more hits
4 = detect-only

%d num_sols Number of elemental solution records, maximum of 100, minimum of 0. This number includes detect-only records.

%c freq_code Site frequency code:
0 = not used
1 = not used
2 = not used
3 = not used
4 = 406 only
5 = 406-MHz and 121.5-MHz.
6 = 406-MHz and 143.-MHz
7 = 406-MHz, 121.5-MHz and 243-MHz
8 = 406 Repeater (Bent Pipe)
9 = 406 interferer

%c db_code IHDB code: 1 = in IHDB, 0 + not in IHDB

%ld first_tca First TCA for the site
%ld last_tca Last TCA for in site
%ld first_entry Time of first data entry in site
%ld last_entry Time of last data entry in site
%ld time_closed Time site closed
%s SRR_rl Primary SRR code for the real side
%s SRR_r2 Secondary SRR code for the real side
%s SRR_il Primary SRR code for image side
%s SRR_i2 Secondary SRR code for image side

Note: XXXX if SRR not applicable

%f C_lat Composite solution latitude, in degrees, in the form +/-xx.xxx, positive in the northern hemisphere.
Composite solution longitude, in degrees, in the form +/-xxx.xxx, positive in the eastern hemisphere.

Composite solution latitude deviation, in thousandths of a degree (no decimal).

Composite solution longitude, in thousandths of a degree (no decimal).

Composite solution correlation coefficient of latitude and longitude, in the range -99 to +99 (no decimal).

Composite solution frequency bias, in Hertz.

Composite solution frequency bias standard deviation, in Hertz.

Number of Blown solutions, 0 if none.

Elemental record:

Elemental record type

Detect-only

4 = 406-MHz regional

5 = 406-MHz global

6 = 406-MHz bent pipe

Start of the doppler curve; calculated as the time of the first point on the curve minus the TAC, in seconds (negative if first point precedes TCA).

Orbit number on which LUT received data dump.

Probability that the A solution is the real solution, percent.

Number of points on the Doppler curve.

Duration of curve; calculated as time of the last point, minus time of the first point.

Satellite id: S2, S3, S4,...; C4, C5, C6,... .

Sum of code values from the table below for all LUTs in the Single Pass Merge that produced this elemental solution.

Sum of code values from the table below for all MCCs in the Single Pass Merge that produced this elemental solution.
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### Table: MCC

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<td>4771</td>
<td>Hong Kong</td>
</tr>
<tr>
<td>10</td>
<td>4190</td>
<td>INMCC</td>
</tr>
<tr>
<td>11</td>
<td>4191</td>
<td>Bangalore</td>
</tr>
<tr>
<td>12</td>
<td>4192</td>
<td>Lucknow</td>
</tr>
<tr>
<td>13</td>
<td>4311</td>
<td>Yokohama</td>
</tr>
<tr>
<td>14</td>
<td>5121</td>
<td>Wellington</td>
</tr>
<tr>
<td>15</td>
<td>2571</td>
<td>Tromsoe</td>
</tr>
<tr>
<td>16</td>
<td>4631</td>
<td>Lahore</td>
</tr>
<tr>
<td>17</td>
<td>2730</td>
<td>CMC</td>
</tr>
<tr>
<td>18</td>
<td>2731</td>
<td>Arkhangelsk</td>
</tr>
<tr>
<td>19</td>
<td>2732</td>
<td>Moscow</td>
</tr>
<tr>
<td>20</td>
<td>2733</td>
<td>Nadkhodka</td>
</tr>
<tr>
<td>21</td>
<td>2734</td>
<td>Novosibirsk</td>
</tr>
<tr>
<td>22</td>
<td>2735</td>
<td>Tilichniki</td>
</tr>
<tr>
<td>23</td>
<td>2471</td>
<td>Bari</td>
</tr>
<tr>
<td>24</td>
<td>5631</td>
<td>Singapore</td>
</tr>
<tr>
<td>25</td>
<td>2241</td>
<td>Mespalamas</td>
</tr>
<tr>
<td>26</td>
<td>2321</td>
<td>Lasham</td>
</tr>
<tr>
<td>27</td>
<td>7701</td>
<td>King George Is.</td>
</tr>
<tr>
<td>28</td>
<td>5251</td>
<td>Indonesia</td>
</tr>
</tbody>
</table>

%ld Calc_Time[i]

Time this elemental solution was processed by the USMCC.

A-solution

%ld A_Tcs[i]

A-solution time of closest approach of satellite to beacon, as calculated by LUT; time of last point on curve for Rec_Type[i] = D (detect-only).

%f A_Cta[i]

A-solution central angle at TCA, in tenths of a degree, in the range -999 to +999 (no
decimal), positive to the left of the track; zero for Rec_Type[i] = D (detect-only).

%d A-Stat[i] Status of Elemental; presently 0 (zero)
%f A_Lat[i] A-solution latitude, in degrees, in the form +/-xx.xxx, positive in the northern hemisphere; 0.000 for Rec_Type[i] = D (detect-only).
%f A_Lon[i] A-solution longitude, in degrees, in the form +/-xxx.xxx, positive in the eastern hemisphere 0.000 for Rec_Type[i] = D (detect-only).
%f A_Lat_dev[i] A-solution latitude deviation, in thousandths of a degree (no decimal).
%f A_Lon_dev[i] A-solution longitude, in thousandths of a degree (no decimal).
%f A_Corr[i] A-solution correlation coefficient of latitude and longitude, in the range -99 to +99 (no decimal).
%d A_Noise[i] A-solution measurement noise in Hertz, x 10.
%ld A_Bias[i] A-solution frequency bias, in Hertz.
%d A_Bias_dev[i] A-solution frequency bias standard deviation in Hertz, x 10.
%d A_Drift[i] A-solution frequency bias drift rate in Hertz/min, x 10.

Note: The above seven fields are 0 (zero) for Rec_Type[i] = D (detect-only)

B-solution Same as A-solution with “B” in place of “A”.
APPENDIX H: CHECKS ON BEACON ID AND BEACON MESSAGE

406 MHz Beacon Message Validation

Each MCC should validate all incoming 406 MHz beacon alert messages based on the rules provided in the following tables.

Step 1 of the validation procedure at an MCC should be the performance of a BCH check of all incoming 406 MHz alert messages from MCCs and LUTs. The resultant MCC action is defined by Table H-1.

<table>
<thead>
<tr>
<th>Number of Uncorrected BCHErrors Detected</th>
<th>Number of Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$ 2</td>
</tr>
<tr>
<td>0</td>
<td>Process</td>
</tr>
<tr>
<td>$ 1</td>
<td>Suppress Process</td>
</tr>
</tbody>
</table>

Table H-1: MCC Action Based on BCH Error Determination

Step 2 of the validation procedure at an MCC should be a comparison of the beacon message contents against a known protocol specification. Specifically, the following items in the protected field(s) should be validated against C/S T.001:
- country code,
- user protocol,
- Baudot characters,
- Binary coded decimal fields, and
- encoded latitude and longitude.

A 406 MHz beacon alert message fails when the conditions in Table H-2 below are met.
<table>
<thead>
<tr>
<th>Item to check</th>
<th>Bits</th>
<th>Fail if:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country Code</td>
<td>27 - 36</td>
<td>Decimal value &lt; 200 or &gt; 780</td>
</tr>
<tr>
<td>User Protocol (see note)</td>
<td>37 - 39</td>
<td>bit 26 = 1 and bits 37 - 39 = 101</td>
</tr>
<tr>
<td>Serialized User Protocol</td>
<td>40 - 42</td>
<td>bit 26 = 1 and bits 40 - 42 = 101 or 111</td>
</tr>
<tr>
<td>Maritime User, Radio Call Sign or Aviation</td>
<td>82 - 83</td>
<td>bit 26 = 1 and bits 37 - 39 = 010, 110 or 001 and bits 82 - 83 are non-zero</td>
</tr>
<tr>
<td>National Short Location Protocol and</td>
<td>37 - 40</td>
<td>bit 26 = 0 and bits 37 - 40 = 1001, 1100 or 1101</td>
</tr>
<tr>
<td>National Location Protocol</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modified Baudot Code</td>
<td>Varies</td>
<td>Unassigned Baudot Character</td>
</tr>
<tr>
<td>Binary Coded Decimal</td>
<td>Varies</td>
<td>Decimal value for four bit group &gt; 10</td>
</tr>
<tr>
<td>Encoded Latitude and Longitude</td>
<td>Varies</td>
<td>encoded latitude &gt; 90 or encoded longitude &gt; 180</td>
</tr>
</tbody>
</table>

**Note:** For User Protocol, “101” in bits 37-39 indicates Special Use. Special Use is not available for any “new” beacons, however, some beacons will exist for a short period using this bit pattern and, therefore, this validation check should not be performed until those beacons are phased out of service which is expected to be December 1997.

**Table H-2: Protocol Validation for 406 MHz Alert Message**

The appropriate action by an MCC based on the results of the comparisons of Table H-2 are given in Table H-3 below.
<table>
<thead>
<tr>
<th>Protocol Check Results</th>
<th>Number of Points</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>$ 2</td>
</tr>
<tr>
<td>Pass</td>
<td>Process</td>
</tr>
<tr>
<td>Fail</td>
<td>Suppress</td>
</tr>
<tr>
<td></td>
<td>Process</td>
</tr>
</tbody>
</table>

Table H-3: MCC Action Based on Result of Protocol Validation
APPENDIX I: FORMAT OF TWO LINE ORBITAL ELEMENTS

SAT ID = 15427 S2 SARSAT-2 NOAA- 9/F OR
1 15427U 84123A 97121.17754722 .00000033 00000-0 00000+0 0 1272
2 15427 98.9022 191.6074 0015241 132.5150 227.7863 14.13852347638560

SAT ID = 16969U S3 SARSAT-3 NOAA-10/G
1 16969S 86073A 97121.20340929 .00000057 00000-0 00000+0 0 583
2 16969 98.5420 115.4639 0013317 144.6635 215.5988 14.25027186552000

SAT ID = 19531U S4 SARSAT-4 NOAA-11/H OR
1 19531U 88089A 97121.21789398 -.00000052 00000-0 00000+0 0 9459
2 19531 99.1553 153.1829 0012040  68.9915 291.3091 14.13128582443378

SAT ID = 23455U S6 SARSAT-6 NOAA-13/J OR
1 23455U 94089A 97121.25013183  .00000265 00000-0 00000+0 0 267
2 23455 98.9872  72.4450 0009844  65.4740 294.8005 14.11664881120323

SAT ID = 20103U C4 COSPAS-4 OR
1 20103U 89050A 97121.25131198  .00000038 00000-0 00000+0 0 1206
2 20103 82.9596 234.0895 0036741 247.4410 112.3401 13.73877227392363

SAT ID = 20508U C5 COSPAS-5 OR
1 20508U 90017A 97121.10205822  .00000003 00000-0 00000+0 0 8069
2 20508  82.9550   8.6641 0044182 199.9770 160.0202 13.73520796359542

SAT ID = 21152U C6 COSPAS-6 OR
1 21152U 91019A 97120.84096307 -.00000003 00000-0 00000+0 0 2769
2 21152  82.9221 270.4895 0041919 177.7884 182.4008 13.75693192240526

SAT ID = 23179U C7 COSPAS-7 OR
1 23179U 94041A 97121.17016380  .00000022 00000-0 00000+0 0 3479
2 23179  82.9462   0.9287 0035898 316.7369  43.1514 13.75693192240526

SAT ID = 17561U G7 GOES-7
1 17561U 87022A 97119.84825080  .00000000 00000-0 00000+0 0 3813
2 17561 3.6372  67.2380 0003249 323.2572  36.7253  1.00259824  7100

SAT ID = 23051U G8 GOES-8
1 23051U 94022A 97119.33270525  .00000000 00000-0 00000+0 0 5336
2 23051 0.1446 261.2420 0004080 121.1475 238.8951  1.00259782 18546

SAT ID = 23581U G9 GOES-9
1 23581U 95025A 97120.03168613  .00000000 00000-0 00000+0 0 7100
2 23581 0.2211  94.1834 0001342 308.1440 51.8476  1.00264642  7100

SAT ID = 22027U IA INSAT-2A
1 22027U 92041A 97111.67886377  .00000000 00000-0 00000+0 0 6910
2 22027  0.0220 168.0025 0007910 39.3761 320.7008  1.00269683 17347

SAT ID = 22724U IB INSAT-2B
1 22724U 93048B 97115.44649442  .00000000 00000-0 00000+0 0 5336
2 22724 0.0606 107.6786 0004263  2.5586 357.4511  1.00270194 14103

SAT ID = 23426U LE LUCH-M-E
1 23426U 94082A 97120.10691567  .00000000 00000-0 00000+0 0 5229
2 23426 0.8356 259.5122 0016107 128.7287 231.4183  0.99415700  8765
APPENDIX J: ACTIVE SITE FILE DATA ELEMENTS

See Section 5 of Reference P.
**APPENDIX K: RCC PASS SCHEDULE FORMAT**

SATELLITE PASSES OVER KOREA FOR 11 APR 97 TO 12 APR 97  
LAT 38 18.0N, LONG 127 18.0E  
SCHEDULE BUILD 10 2310 APR 97  

AZM = AZIMUTH OF SATELLITE PASS AT MAXIMUM ELEVATION OVER KOREA  
EL = MAXIMUM ELEVATION OF SATELLITE PASS OVER KOREA  
S = WILL BE TRACKED BY LUT  
P = POSSIBLY TRACKED BY LUT  
TM = MINUTES OF MUTUAL VISIBILITY, MINIMUM TRACKABLE IS 4

<table>
<thead>
<tr>
<th>SAT/ORBIT</th>
<th>BEGIN</th>
<th>END</th>
<th>GU1</th>
<th>GU2</th>
<th>HONGK</th>
<th>JAPAN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TIME</td>
<td>TIME</td>
<td>AZM</td>
<td>EL</td>
<td>TM</td>
<td>TM</td>
</tr>
<tr>
<td>S4 44051</td>
<td>10 2346</td>
<td>0001</td>
<td>289</td>
<td>59</td>
<td></td>
<td>9_P</td>
</tr>
<tr>
<td>S2 63571</td>
<td>11 0046</td>
<td>0100</td>
<td>092</td>
<td>18</td>
<td>8_S</td>
<td>7_S</td>
</tr>
<tr>
<td>S4 44052</td>
<td>11 0128</td>
<td>0138</td>
<td>305</td>
<td>7</td>
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<td></td>
</tr>
<tr>
<td>S2 63572</td>
<td>11 0226</td>
<td>0241</td>
<td>290</td>
<td>53</td>
<td></td>
<td>9_P</td>
</tr>
<tr>
<td>S6 11748</td>
<td>11 0303</td>
<td>0313</td>
<td>054</td>
<td>6</td>
<td>_S</td>
<td>_S</td>
</tr>
<tr>
<td>S2 63573</td>
<td>11 0409</td>
<td>0418</td>
<td>306</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S6 11749</td>
<td>11 0440</td>
<td>0455</td>
<td>071</td>
<td>52</td>
<td>8_S</td>
<td></td>
</tr>
<tr>
<td>S3 54916</td>
<td>11 0625</td>
<td>0637</td>
<td>060</td>
<td>11</td>
<td>4_S</td>
<td></td>
</tr>
<tr>
<td>S6 11750</td>
<td>11 0622</td>
<td>0635</td>
<td>267</td>
<td>19</td>
<td></td>
<td>9_P</td>
</tr>
<tr>
<td>S3 54917</td>
<td>11 0802</td>
<td>0818</td>
<td>321</td>
<td>89</td>
<td>7_S</td>
<td>9_P</td>
</tr>
<tr>
<td>S4 44057</td>
<td>11 0930</td>
<td>0945</td>
<td>066</td>
<td>28</td>
<td>7_S</td>
<td>7_S</td>
</tr>
<tr>
<td>S3 54918</td>
<td>11 0945</td>
<td>0956</td>
<td>272</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S4 44058</td>
<td>11 1110</td>
<td>1126</td>
<td>262</td>
<td>36</td>
<td>5_S</td>
<td>5_S</td>
</tr>
<tr>
<td>S2 63578</td>
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<td>1225</td>
<td>067</td>
<td>30</td>
<td>7_S</td>
<td>7_S</td>
</tr>
<tr>
<td>S2 63579</td>
<td>11 1351</td>
<td>1406</td>
<td>263</td>
<td>34</td>
<td>5_S</td>
<td>5_S</td>
</tr>
</tbody>
</table>
APPENDIX L:  SHARED FILE PASS SCHEDULE FORMAT

%s sat_id  Satellite id
%s lut_id  LUT id
%ld orbit_num  Orbit number of pass
%c no_conflict  ‘Y’ indicates that this pass is to be taken without conflict; otherwise ‘N’
%c accept  ‘Y’ indicates that this pass is to be taken, and conflicting pass not to be taken; otherwise ‘N’.
%c pcr_next_pass  ‘Y’ indicates PCR predicts that this pass will be taken; otherwise ‘N’.
%c low_pass  ‘Y’ indicates that this pass is not taken because it has less than 8 minutes above the radio horizon, or for operational reasons related to the LUT or to the satellite.
%c reject  ‘Y’ indicates that this pass is rejected because it conflicts with another pass; otherwise ‘N’.
%c pcr_recvd  ‘Y’ indicates that a PCR has been received for this pass.
%ld AOS  Time of Acquisition of Signal (See E_HORIZON)
%ld LOS  Time of Loss of Signal (See E_HORIZON)
%f AZ1  Azimuth at AOS, in tenths of a degree, with no decimal, in the range 0 - 3599.
%f AZ2  Azimuth at LOS, in tenths of a degree, with no decimal, in the range 0 - 3599.
%f max_elangle  Maximum elevation angle, in hundredth of a degree, with no decimal, in the range 0-9000.
%f AZ3  Azimuth at TCA, in tenths of a degree, with no decimal, in the range 0 - 3599.
%f subsat_lat1  Latitude of subsatellite point at AOS, in degrees, in the form +/-xx.xxx, positive in northern hemisphere.
%f subsat_lon1  Longitude of subsatellite point at AOS, in degrees, in the form +/-xxx.xxx, positive in eastern hemisphere.

%f subsat_lat2  Latitude of subsatellite point at LOS, in degrees, in the form +/-xx.xxx, positive in the northern hemisphere.

%f subsat_lon2  Longitude of subsatellite point at LOS, in degrees, in the form +/- xxx.xxx, positive in the eastern hemisphere.

c EW_priority  East-West priority flag; ‘Y’ indicates high priority.

%d pass_priority  Pass resolution priority; equal to pass duration times satellite priority.

c mc_priority  Master-Slave priority flag:
‘Y’ = high priority;
‘N’ = low priority, dual LUT master has scheduled the pass.

c E_HORIZON  Y = AOS and LOS relative to earth horizontal;
N = AOS and LOS relative to obstructed horizon.

c pass_in_spec  Y indicates pass is in specification: currently:
(1) it has at least 4 minutes of pass visibility above 5 deg above radio (obstructed) horizon, and
(2) it has at least 8 minutes above the radio horizon;
N indicates pass is not in specification.
Condition (2), but not condition (1), disqualifies the pass from being scheduled.
APPENDIX M: INCIDENT HISTORY DATA BASE INCIDENT REPORT FORMAT

DISTRESS INCIDENT REPORT FOR DOCUMENTATION OF SAR EVENTS AND PERSONS RESCUED
PREPARED: 06/20/97 12:31

a) Type of incident: EPIRB 121.5 MHz

b) Date of incident: 03/12/97

c) Location of incident: Florida
   28.9785 N. 84.7554 W

d) Identification/type of craft involved: TRGHTRN WP

e) Circumstances of distress situation:
   No Public Relations (PR) information for this site
   97F1A82453   I-2941
   GCD7 RPTD-
   GENERAL LOCATION: MIDDLE GROUNDS, FL
   REMARKS: VSL HAD ENGINE PROBLEMS AND WAS DISABLED.
   CGD8 RPTD-
   REMARKS: SIGNAL CEASED BEFORE ANY CGD ASSETS WERE LAUNCHED.

f) Nature of COSPAS-SARSAT alert data:
   - only alert [x]
   - first alert [x]
   - supporting date [x]

g) Number of persons:
   - involved 3
   - rescued 3

h) Other significant information:
APPENDIX N: FG USMCC CONFIGURATION PARAMETERS

N.1. For System Message Routing for each Communication Site, specify the following configuration parameters:

- Sit 215 (Orbit Vector) flag (Send/Do not Send)
- Sit 415 (Time Calibration) flag (Send/Do not Send)
- Sit 416 (SARP Telemetry) flag (Send/Do not Send)
- Sit 425 (SARP Telemetry Out of Limits) flag (Send/Do not Send)
- Sit 435 (SARP Command Request) flag (Send/Do not Send)
- Sit 445 (SARP Command Verification) flag (Send/Do not Send)
- Sit 515 (SARR Telemetry) flag (Send/Do not Send)
- Sit 525 (SARR Telemetry Out of Limits) flag (Send/Do not Send)
- Sit 535 (SARR Command Request) flag (Send/Do not Send)
- Sit 545 (SARR Command Verification) flag (Send/Do not Send)
- Sit 605 (System Narrative) flag (Send/Do not Send)
- Sit 915 (Narrative) flag (Send/Do not Send)
- Sit 925 (Registration data) flag (Send/Do not Send)
- Sit 953 (LUT Pass Schedule) flag (Send/Do not Send)

N.2. Where Alert messages based on SAR are to be routed or to determine if Alert messages of a certain type (e.g., 121 MHz First Alert) are to be sent at all, for each Search and Rescue (SAR) site, specify the following configuration parameters:

- SAR to which messages to SarCode are to be redirected. If not set or if set = SarCode, the message is not redirected. (If set to Blanks, no message is sent.) Note that echo SARs only apply to the Primary SarCode.
- First SAR to which messages for SarCode are to be echoed. Note that echo SARs may be echoed again in the
next SarCode link.

- Second SAR to which messages for SarCode are to be echoed
- Send 123 First Alert for SarCode (Yes/No)
- Send 123 First Alert Missed Pass Message for SarCode (Yes/No)
- Send 123 Composite Missed Pass Message for SarCode (Yes/No)
- Send 406 First Alert Missed Pass Message for SarCode (Yes/No)
- Send 406 Composite Missed Pass Message for SarCode (Yes/No)
- Send 406 First Alert (Pre-composite) for SarCode (Yes/No)

- Number of 123 Composites to send for SarCode.
- Number of 406 Composites to send for SarCode.

N.3. For Alert Processing, where alert messages are to be routed based on Maritime Identification Digits (MID) or Country Identifier encoded in a 406 MHZ Beacon Id, for each MID, specify the following configuration parameters:

- Country name
- Destination SRR for unlocated alerts with this Mid in Beacon Id
- Destination SRR for NOCR alerts with this Mid in Beacon Id
- Destination SRR for Sit 925 messages with this Mid in Beacon Id

N.4. To describes the route by which one MCC distributes Alert data to another MCC, for each MCC, specify the following configuration parameters:

- Name of destination MCC (matches Com Site Name), the final recipient of the alert
- Name of support MCC (matches Com Site Name).

N.5. To govern the display and alarm settings for the Operator Messages issued by the MCC, for each User ID, specify the following configuration parameters:
- Last message from Operator Message Log displayed to user.

- Action required by MCC controller. First ‘Flash’ message from Operator Message Log not acknowledged by user.

- Immediate action required by MCC controller. First ‘Audible’ message from Operator Message Log not acknowledged by user.

- For each User ID and for each Subsystem that wrote message to Operator message Log, specify:

  - Last minimum ‘OperPrior’ priority set by user for displaying messages in ‘Message Scroll’ Window.
  - Last minimum ‘OperPrior’ priority set by user for displaying messages in ‘Message Alarm’ Window as a ‘Flash Message’.

  - Last minimum ‘OperPrior’ priority set by user for displaying messages in ‘Message Alarm’ Window as an ‘Audible Message’.

  - Maximum ‘OperPrior’ priority (set by management) that user can set for messages to be displayed.

  - Maximum ‘OperPrior’ priority (set by management) that user can set for messages to be displayed as a Flash Message.

  - Maximum ‘OperPrior’ priority (set by management) that user can set for messages to be displayed as an Audible Message.

**N.6** For Cospas-Sarsat system data processing, for each satellite, specify the following configuration parameters:

- Cospas-Sarsat numeric satellite identifier as defined in the SID. Stored in a character format. SARSAT satellites IDs range from 001 to 099, COSPAS from 101 to 199, GOES from 201 to 220, INSAT from 241 to 260.

- Common name of the satellite
- NOAA’s satellite identifier:
  - NOAA-F NF
  - NOAA-G NG
  - NOAA-H NH
  - NOAA-I NI
  - NOAA-J NJ
  - NOAA-K NK
(contained in the telemetry files from CEMSCS).

- NOAA’s pre-launch designator for the satellite, not applicable for non-USA satellites.

- NOAA’s post-launch designator for the satellite, not applicable for non-USA satellites.

- NORAD’s identifier for the satellite, applicable for all satellites. Normally a numeric but stored as a character field.

- The operational status of the satellite (Not operational/Operational)

- The storage location for the associated SARP telemetry points.

- The storage location for the associated SARR telemetry points.

- The status (Not operational/Operational) of the 121.5 repeater on-board the satellite:

- The status (Not operational/Operational) of the 243 repeater on-board the satellite:

- The status (Not operational/Operational) of the 406 repeater on-board the satellite:

- The status (Not operational/Operational) of the 406 SARP Local Mode on-board the satellite:

- The status (Not operational/Operational) of the 406 SARP Global Mode on-board the satellite:

- The status (Not operational/Operational) of the 406 SARP Pseudo Mode on-board the satellite:

- Nominal inclination of the satellite in degrees [0.0 to ± 180.0].

- Average altitude of the satellite in kilometers [500.0 to 36,000].

- The orbital period of the satellite in seconds [5000.0 to 87,000.0].

- The semi-major axis of the satellite in km.

- Ultra Stable Oscillator Frequency, nominal value in Hz.
- Number of Bits in on-board clock.

- Period between clock rollovers. (Approximate ambiguity of time-tagging).

N.7 For Cospas-Sarsat system data processing for processing telemetry data from the SARP instrument on Sarsat spacecraft, specify the following configuration parameters:

- The identifier for the telemetry point. Valid points for the SARP are:
  
  RUBOXTMP
  USO_TEMP
  USO_REGV
  RG_REGUL
  SPU_TEMP
  PCU_TEMP
  CON_TEMP
  CON_P05V
  CON_N52V
  CON_P12V
  CON_N12V
  BUS_P28V
  SAT_TEMP

- Name of the telemetry point (same for each satellite)

- Flag to indicate if the telemetry point is active (Not operational or not used/Operational) for this satellite.

- Flag to indicate if data from this point should generate an out-of-limit message.

- Flag to indicate if data from this point is used to generate a summary message.

- Polynomial equation coefficient a used to convert telemetry volts to engineering units.

- Polynomial equation coefficient b used to convert telemetry volts to engineering units.

- Polynomial equation coefficient c used to convert telemetry volts to engineering units.

- Polynomial equation coefficient d used to convert telemetry volts to engineering units.

- Polynomial equation coefficient e used to convert telemetry volts to engineering units.

- Minimum value for the telemetry point in engineering units.

- Maximum value for the telemetry point in engineering units.
- Minimum change rate for the telemetry point in telemetry volts.

- Maximum change rate for the telemetry point in telemetry volts.

- Nominal value for the telemetry point.

N.8 For Cospas-Sarsat system data processing for processing telemetry data from the SARR instrument on Sarsat spacecraft, specify the following configuration parameters:

- The identifier for the telemetry point. Valid points for the SARR are:
  TX_POWER
  TX_CURRT
  TX_TEMPE
  OC121TMP
  OC406TMP
  PTC_TEMP
  PTC_P16V
  PTC_P28V
  TXBPTEMP
  AGC_121
  AGC_243
  AGC_406

- Name of the telemetry point.

- Flag to indicate if the telemetry point is active for this satellite.

- Flag to indicate if data from this point should generate an out-of-limit message:

- Flag to indicate if data from this point is used to generate a summary message

- Polynomial equation coefficient 1 used to convert telemetry volts to engineering units.

- Polynomial equation coefficient b used to convert telemetry volts to engineering units.

- Polynomial equation coefficient c used to convert telemetry volts to engineering units.

- Polynomial equation coefficient d used to convert telemetry volts to engineering units.

- Polynomial equation coefficient e used to convert telemetry volts to engineering units.

- Minimum value for the A side telemetry point in telemetry volts.
- Maximum value for the A side telemetry point in telemetry volts.

- Minimum value for the B side telemetry point in telemetry volts.

- Maximum value for the B side telemetry point in telemetry volts.

N.9 Communication Configuration - For default or override configuration, specify the following configuration parameters:

- X.25 Accept Done timeout (milliseconds).

- X.25 Flow Control Done timeout (milliseconds).

- X.25 Gateway Call Done timeout (milliseconds).

- X.25 Gateway Listen Done timeout (milliseconds).

- X.25 Link Statistics Done timeout (milliseconds).

- X.25 Packet Statistics Done timeout (milliseconds).

- X.25 PVC Call Done timeout (milliseconds).

- X.25 Receive Done timeout (milliseconds).

- X.25 Register Done timeout (milliseconds).

- X.25 Reset Done timeout (milliseconds).

- X.25 Reset Confirm Done timeout (milliseconds).

- X.25 Send Done timeout (milliseconds).

- X.25 Send Confirm Done timeout (milliseconds).

- X.25 Send Exp Done timeout (milliseconds).

- X.25 Send ExpConfirm Done timeout (milliseconds).

- X.25 Status Done timeout (milliseconds).

- X.25 XCall Done timeout (milliseconds).
- X.25 XHangup Done timeout (milliseconds).

- X.25 XHangupConfirm Done timeout (milliseconds).

- X.25 XListen Done timeout (milliseconds).

N.10  Communication Configuration - For each X.25 Gateway Port Number, specify the following configuration parameters:

- X.25 Gateway Port Priority.


- X.25 Call In Allowed on this Port.

- X.25 Call Out Allowed on this Port.

- Get Link Statistics for port Time interval (milliseconds) from midnight (on the hour = 60*60*1000), zero = do not get statistics.

- Reset Link Statistics for port after specified number of Get Link Statistics, zero = do not reset statistics and one = reset statistics every time.

- Get Packet Statistics for port Time interval (milliseconds) from midnight (on the hour = 60*60*1000), zero = do not get statistics.

- Reset Packet Statistics for port after specified number of Get Packet Statistics, zero = do not reset statistics and one = reset statistics every time.
N.11 Communication Configuration - For each communication site, specify the following communication parameters:

- Communication Site Type Identifier: LUT ID, etc.

- Communication Site Type: “LUT”, “MCC”, “RCC”, “SPOC”, ”X400”.

- State (Online/Offline).

- Hold all Input.

- Hold all Output.

- Send is allowed.

- Receive allowed or expected.

- Communication Site Send Path Table (Type) Name: ComX25Path, ComTelexPath, ComFaxPath, ComX400Path, ComAftnPath, ComPrinterPath, ComBitBucket, ComNonePath.

- Search And Rescue Code (3 Digit MID Code and 1 Alphanumeric country code).

- Type of Alert Message to be sent, RCC, MCCNew, MCCOld, CSEL, SPOC.

- Receive SIT 115 in Old format.

- Receive SIT 125 in Old format.

- Receive SIT 133 in Old format.

- Send Current Message Number.

- Receive Current Message Number.

- Communication Path Name.

- Communication Site Path Number and Priority.

- X.25 Call Out Gateway Name.

- X.25 Call Out Gateway Number.

- X.25 Call Out Remote Network Terminal Number.
- X.25 Call Out Local Network Terminal Number.
- X.25 Call Out Facility Hex Data.
- X.25 Call Out Call User Data Character, hex Data prefix: “0x”.
- X.25 Call In Verify Local Network Terminal Number Data (Null if no Verification).
- X.25 Call In Remote Network Terminal Number Data (Null if no Verification).
- X.25 Call In Facility Character Data, hex Data prefix: “0x” (Null if no Verification).
- X.25 Call In Protocol ID Hex Data (Null if no Verification).
- X.25 Call In Call User Data (Null if no Verification).
- Maximum Send Data Byte Length.
- Maximum Receive Data Byte Length.
- Send Minimum Message Number.
- Send Maximum Message Number.
- Receive Minimum Message Number.
- Receive Maximum Message Number.
- Send Line Maximum Length, not including carriage control.
- Send End Of Line Carriage Control.
- Send End Of Message Carriage Control, Should include End Of Line Carriage Control for last line in message.
- Relay Received Data Communication Site Name/Path Name (Data received from ComSite is Relayed to the specified ComSite(s) as is).
- Duplicate Send Data Communication Site Name/Path Name (Data sent to ComSite is Duplicated to the specified ComSite(s) as is).
- Call Out Try Maximum count; each subsequent attempt should use the next functioning X.25 Gateway and Port.

- Call Out Try Time between tries (milliseconds).

- Minimum Connect Time for Idle disconnect (milliseconds).

- Connect Interval Time for Idle disconnect (milliseconds). Idle disconnect should only occur after Minimum Connect Time plus zero or more Minimum Connect Time(s).

- Idle Disconnect Time - No Input or Output data (milliseconds).
1. COSPAS-SARSAT 406 MHZ INTERFERENCE REPORT

2. MSG NO. nnnnn USMCC REF nnnnn

3. DETECTED AT dd mmm yy hhmm UTC BY SARSAT nn

4. POSITION(S) <AMBIGUITY RESOLVED, AMBIGUITY NOT RESOLVED>
   
   dd mm.m<N/S> ddd mm.m<E/W> REGION - aaaaa FREQ - nnn.nnnn MHZ
   dd mm.m<N/S> ddd mm.m<E/W> REGION - aaaaa FREQ - nnn.nnnn MHZ

5. PREVIOUS POSITION(S)
   
   LATITUDE     LONGITUDE     DETECT TIME FREQ (MHZ) REGION
   dd mm.m<N/S> ddd mm.m<E/W> dd hhmm mmm nnn.nnnn   aaaaa

6. PROABLE SEARCH AREA - RADIUS OF nn KM

7. OTHER INFORMATION -
   
   (Could include things like characteristics, frequency of occurrence, nearest city, etc...)

8. REMARKS - PLEASE CONTACT <POC/TELEPHONE> AT THE USMCC FOR MORE INFORMATION
Appendix P

Output Format for Interference Query

[TBD]
Appendix Q

Formats for Periodic Reports

C.2 ITU INTERFERENCE REPORT FORMS
(from Recommendation ITU-R SM.1051-2)

C.2.1 Information report concerning interference

a) Mean latitude and longitude

b) Probable search radius from mean location. Country. Nearest city

c) Frequencies

d) Number of observations (total and number since last report)

e) First and last date of occurrences

f) Modulation characteristics

g) Times and days-of-week of occurrences

h) Other details

C.2.2 Feedback report concerning the interference source

a) Latitude and longitude

b) Fundamental frequency of offending source (this may be outside the band)

c) Type of equipment

d) Cause of interference

e) Action taken
### Table C.1: 406 MHz Interference Report Format

#### Part 1

<table>
<thead>
<tr>
<th>Country</th>
<th>Nearest City</th>
<th>Distance (mi)</th>
<th>Site ID/Number</th>
<th>Location</th>
<th>Search Area (degrees)</th>
<th>Mean Antenna Elevation (°), Azimuth (°)</th>
<th>Mean Longitude (°), Latitude (°)</th>
<th>Mean Detected Frequency (MHz)</th>
<th>Modulation Character</th>
<th>Impact on System</th>
<th>Monthly Emission Rate</th>
<th>Dates of Observations</th>
<th>Times and Days of Work of Observers</th>
<th>Number of Observations (number above last report and total)</th>
<th>Other Details</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>1, 2, 3, 4</td>
<td>5, 6, 7, 8</td>
<td>9</td>
<td>10, 11, 12</td>
<td>13, 14, 15, 16, 17</td>
<td>18, 19, 20, 21</td>
<td>22, 23, 24, 25</td>
<td>26</td>
<td>27, 28, 29, 30, 31</td>
<td>32, 33, 34, 35, 36</td>
<td>37, 38, 39, 40, 41</td>
<td>42, 43, 44, 45, 46</td>
<td>47, 48, 49, 50, 51</td>
</tr>
<tr>
<td>MID1234</td>
<td>S.</td>
<td>50</td>
<td>N.E.</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

#### Part 2 (see Note 5)

<table>
<thead>
<tr>
<th>Status</th>
<th>Location (Confirmed: Exposed)</th>
<th>Longitude</th>
<th>Latitude</th>
<th>Type of Equipment</th>
<th>Assigned Frequency (MHz)</th>
<th>Assigned Frequency Range (MHz)</th>
<th>Class of Intersystem</th>
<th>Power (Watts/Transmission)</th>
<th>Cause of Interference</th>
<th>Action Taken</th>
<th>Other Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27</td>
<td>28</td>
<td>29</td>
<td>30</td>
<td>31</td>
<td>32</td>
<td>33</td>
</tr>
<tr>
<td>L</td>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27</td>
<td>28</td>
<td>29</td>
<td>30</td>
<td>31</td>
<td>32</td>
<td>33</td>
<td>34</td>
</tr>
</tbody>
</table>

**Notes:**

1. Reporting should be provided in Excel format on a monthly basis. Minimum data is required for the following columns: 1, 2, 3, 4, 5, 6, 7, 8, 9, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21.

2. Site ID/Number consists of two parts: 3-digit country code according to ITU MEC code of the country of reporting authority plus 6 digits, assigned by the authority to the site.

3. Type of modulation of main emission: AM - Amplitude Modulated Emitter; FM - Frequency Modulated Emitter; PM - Phase Modulated Emitter. (See Option for Part 1, supplied in case of unavailability).

4. **High:** Radio/Digital/Headed reference beacon in case of mutual visibility by 50% and more. **Medium:** by 25-50%, **Low** less than 25%.

5. Monthly EIRP = NHN(N+1), where NH = number of times over emitter another 5 degrees, with at least 1 location; NN = number of times over emitter another 5 degrees, with no location. Interference with DB = 0.1 and more should be reported.

6. Other data depend on feedback report concerning interference source. This is normally provided after the site has been closed and emissions have been stopped.

- **END OF ANNEX C** -