



Ref. T2-OSS/1.4

MSC.1/Circ.1311
8 June 2009

**ADOPTION OF AMENDMENTS TO THE INTERNATIONAL AERONAUTICAL
AND MARITIME SEARCH AND RESCUE (IAMSAR) MANUAL**

1 The Maritime Safety Committee (MSC), at its eighty-sixth session (27 May to 5 June 2009), having been informed that the International Civil Aviation Organization (ICAO) had approved the amendments to the IAMSAR Manual prepared by the Joint ICAO/IMO Working Group on Harmonization of Aeronautical and Maritime Search and Rescue, and that they had been endorsed by the Sub-Committee on Radiocommunications and Search and Rescue (COMSAR), at its thirteenth session (19 to 23 January 2009), approved the annexed amendments in accordance with the procedure laid down in resolution A.894(21).

2 The Committee decided that the amendments should become applicable on 1 June 2010.

ANNEX

PROPOSED AMENDMENTS TO THE IAMSAR MANUAL – VOLUME II

Appendix B – Message Formats

- Replace all examples given on pages B-3 to B-8 with the following examples;
- Delete existing page B-10 (Inmarsat-E format); and
- Renumber the pages.

SAMPLE 406 MHz INITIAL ENCODED POSITION ALERT
(STANDARD LOCATION – EPIRB: SERIAL NUMBER)

1. DISTRESS COSPAS-SARSAT INITIAL ALERT
2. MSG NO: 00306 AUMCC REF: 12345
3. DETECTED AT: 17 APR 07 1627 UTC BY GOES 11
4. DETECTION FREQUENCY: 406.0250 MHz
5. COUNTRY OF BEACON REGISTRATION: 316/ CANADA
6. USER CLASS: STANDARD LOCATION - EPIRB
SERIAL NO: 05918
7. EMERGENCY CODE: NIL
8. POSITIONS:
RESOLVED – NIL
DOPPLER A – NIL
DOPPLER B – NIL
ENCODED – 05 00 00 S 178 00 00 E TIME OF UPDATE 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: 278C362E3CFFBFF HOMING SIGNAL: 121.5 MHZ
12. ACTIVATION TYPE: NIL
13. BEACON NUMBER ON AIRCRAFT OR VESSEL: NIL
14. OTHER ENCODED INFORMATION:
CSTA CERTIFICATE NO: 0108
BEACON MODEL – ACR, RLB-33
ENCODED POSITION UNCERTAINTY: PLUS-MINUS 30 MINUTES OF
LATITUDE AND LONGITUDE

15. OPERATIONAL INFORMATION:
LUT ID: NZGEO1 WELLINGTON GEOLUT, NEW ZEALAND (GOES 11)
BEACON REGISTRATION AT [CMCC]

16. REMARKS: NIL

END OF MESSAGE

SAMPLE 406 MHz UNLOCATED ALERT
(NATIONAL LOCATION – ELT)

1. DISTRESS COSPAS-SARSAT ALERT
2. MSG NO: 00141 SPMCC REF: 12345
3. DETECTED AT: 21 FEB 07 0646 UTC BY MSG-2
4. DETECTION FREQUENCY: 406.0249 MHz
5. COUNTRY OF BEACON REGISTRATION: 408/ BAHRAIN
6. USER CLASS: NATIONAL LOCATION – ELT
SERIAL NO: 000006
7. EMERGENCY CODE: NIL
8. POSITIONS:
RESOLVED – NIL
DOPPLER A – NIL
DOPPLER B – NIL
ENCODED – NIL 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: 331000033F81FE0 HOMING SIGNAL: 121.5 MHz
12. ACTIVATION TYPE: NIL
13. BEACON NUMBER ON AIRCRAFT OR VESSEL: NIL
14. OTHER ENCODED INFORMATION: NIL

15. OPERATIONAL INFORMATION:
BEACON REGISTRATION AT WWW.406REGISTRATION.COM

16. REMARKS: NIL

END OF MESSAGE

SAMPLE 406 MHz RESOLVED POSITION ALERT
(NATIONAL LOCATION – PLB)

1. DISTRESS COSPAS-SARSAT POSITION RESOLVED ALERT
2. MSG NO: 00812 AUMCC REF: 2DD747073F81FE0
3. DETECTED AT: 28 APR 07 0920 UTC BY SARSAT S11
4. DETECTION FREQUENCY: 406.0278 MHz
5. COUNTRY OF BEACON REGISTRATION: 366/ USA
6. USER CLASS: NATIONAL LOCATION – PLB
SERIAL NO: 167438
7. EMERGENCY CODE: NIL
8. POSITIONS:
RESOLVED – 33 27 N 038 56 E
DOPPLER A – 33 27 N 038 56 E
DOPPLER B – NIL
ENCODED – 33 25 56 N 038 55 40 E
UPDATE TIME WITHIN 4 HOURS OF DETECTION TIME
9. ENCODED POSITION PROVIDED BY: INTERNAL DEVICE
10. NEXT PASS TIMES:
RESOLVED – NIL
DOPPLER A – NIL
DOPPLER B – NIL
ENCODED – NIL
11. HEX ID: 2DD747073F81FE0 HOMING SIGNAL: 121.5 MHz
12. ACTIVATION TYPE: NIL
13. BEACON NUMBER ON AIRCRAFT OR VESSEL: NIL
14. OTHER ENCODED INFORMATION: NIL
15. OPERATIONAL INFORMATION:
LUT ID: FRLUT2 TOULOUSE, FRANCE
16. REMARKS: NIL

END OF MESSAGE

SAMPLE 406 MHz INITIAL POSITION ALERT
(STANDARD LOCATION – ELT: 24-BIT ADDRESS)

1. DISTRESS COSPAS-SARSAT INITIAL ALERT
2. MSG NO: 00741 AUMCC REF: 3266E2019CFFBFF
3. DETECTED AT: 22 APR 07 0912 UTC BY SARSAT S10
4. DETECTION FREQUENCY: 406.0247 MHz
5. COUNTRY OF BEACON REGISTRATION: 403/ SAUDI
6. USER CLASS: STANDARD LOCATION – ELT
AIRCRAFT 24 BIT ADDRESS: 7100CE
7. EMERGENCY CODE: NIL
8. POSITIONS:
RESOLVED –NIL
DOPPLER A – 32 49 N 081 54 E PROB 69 PERCENT
DOPPLER B – 24 18 N 041 18 E PROB 31 PERCENT
ENCODED – NIL 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: 3266E2019CFFBFF HOMING SIGNAL: 121.5 MHZ
12. ACTIVATION TYPE: NIL
13. BEACON NUMBER ON AIRCRAFT OR VESSEL: NIL
14. OTHER ENCODED INFORMATION:
AIRCRAFT 24-BIT ADDRESS ASSIGNED TO: SAUDI ARABIA
15. OPERATIONAL INFORMATION:
LUT ID: INLUT1 BANGALORE, INDIA
16. REMARKS: NIL

END OF MESSAGE

SAMPLE 406 MHz RESOLVED UPDATE POSITION ALERT
(STANDARD LOCATION – SHIP SECURITY)

1. SHIP SECURITY COSPAS-SARSAT POSITION RESOLVED UPDATE ALERT
2. MSG NO: 00192 AUMCC REF: 2AB82AF800FFBFF
3. DETECTED AT: 03 MAY 07 0853 UTC BY SRSAT S09
4. DETECTION FREQUENCY: 406.0276 MHz
5. COUNTRY OF BEACON REGISTRATION: 341/ ST KITTS
6. USER CLASS: STANDARD LOCATION – SHIP SECURITY
MMSI LAST 6 DIGITS: 088000
7. EMERGENCY CODE: NIL
8. POSITIONS:
RESOLVED – 02 15 N 046 00 E
DOPPLER A – 02 25 N 046 06 E
DOPPLER B – NIL
ENCODED – 01 54 24 N – 045 37 32 E 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: 2AB82AF800FFBFF
HOMING SIGNAL: OTHER (NOT 121.5 MHZ) OR NIL
12. ACTIVATION TYPE: NIL
13. BEACON NUMBER ON AIRCRAFT OR VESSEL: 00
14. OTHER ENCODED INFORMATION: NIL
15. OPERATIONAL INFORMATION:
LUT ID: NZLUT WELLINGTON, NEW ZEALAND
16. REMARKS:
THIS IS A SHIP SECURITY ALERT.
PROCESS THIS ALERT ACCORDING TO RELEVANT SECURITY REQUIREMENTS

END OF MESSAGE

SAMPLE 406 MHz INITIAL ALERT
(SERIAL USER – EPIRB: NON-FLOAT FREE)

1. DISTRESS COSPAS-SARSAT INITIAL ALERT
 2. MSG NO: 01087 AUMCC REF: ADCE402FA80028D
 3. DETECTED AT: 20 MAY 07 1613 UTC BY SARSAT S08
 4. DETECTION FREQUENCY: 406.0266 MHz
 5. COUNTRY OF BEACON REGISTRATION: 366/ USA
 6. USER CLASS: SERIAL USER – EPIRB (NON-FLOAT FREE)
SERIAL NO: 0003050
 7. EMERGENCY CODE: NIL
 8. POSITIONS:
RESOLVED – NIL
DOPPLER A – 36 38 S 168 58 E PROB 50 PERCENT
DOPPLER B – 36 39 S 169 01 E PROB 50 PERCENT
ENCODED – NIL
 9. ENCODED POSITION PROVIDED BY: NIL
 10. NEXT PASS TIMES:
RESOLVED – NIL
DOPPLER A – 21 MAY 07 0812 UTC
DOPPLER B – 21 MAY 07 0812 UTC
ENCODED – NIL
 11. HEX ID: ADCE402FA80028D HOMING SIGNAL: 121.5 MHz
 12. ACTIVATION TYPE: MANUAL
 13. BEACON NUMBER ON AIRCRAFT OR VESSEL: NIL
 14. OTHER ENCODED INFORMATION:
CSTA CERTIFICATE NO: 0163
BEACON MODEL – MCMURDO LTD: G5 OR E5 SMARTFIND
 15. OPERATIONAL INFORMATION:
RELIABILITY OF DOPPLER POSITION DATA - SUSPECT
LUT ID: AULUTW ALBANY, AUSTRALIA
 16. REMARKS: NIL
- END OF MESSAGE

SAMPLE 406 MHz RESOLVED ALERT
(ELT USER – AIRCRAFT REGISTRATION)

1. DISTRESS COSPAS-SARSAT POSITION RESOLVED ALERT
 2. MSG NO: 00932 AUMCC REF: 9D064BED62EAFE1
 3. DETECTED AT: 10 MAY 07 0654 UTC BY SARSAT S11
 4. DETECTION FREQUENCY: 406.0246 MHz
 5. COUNTRY OF BEACON REGISTRATION: 232/ G. BRITAIN
 6. USER CLASS: ELT USER
AIRCRAFT REGISTRATION: VP-CGK
 7. EMERGENCY CODE: NIL
 8. POSITIONS:
RESOLVED – 25 13 N 055 22 E
DOPPLER A – 25 17 N 055 23 E
DOPPLER B – NIL
ENCODED – NIL
 9. ENCODED POSITION PROVIDED BY: NIL
 10. NEXT PASS TIMES:
RESOLVED – NIL
DOPPLER A – NIL
DOPPLER B – NIL
ENCODED – NIL
 11. HEX ID: 9D064BED62EAFE1 HOMING SIGNAL: 121.5 MHZ
 12. ACTIVATION TYPE: MANUAL
 13. BEACON NUMBER ON AIRCRAFT OR VESSEL: NIL
 14. OTHER ENCODED INFORMATION: NIL
 15. OPERATIONAL INFORMATION: NIL
 16. REMARKS: NIL
- END OF MESSAGE

PROPOSED AMENDMENTS TO THE IAMSAR MANUAL – VOLUME III

1 Abbreviations and Acronyms

- Insert in *Abbreviations and Acronyms*

C coverage factor

W sweep width

2 Glossary

- Insert in *Glossary*

Coverage factor (C) The ratio of the search effort (Z) to the area searched (A). $C = Z/A$. For parallel track sweep searches, it may be computed as the ratio of sweep width (W) to track spacing (S). $C = W/S$.

Sweep width (W) A measure of the effectiveness with which a particular sensor can detect a particular object under specific environmental conditions.

3 Section 3

Page 3-16: Second item from the top;

- total water current may be estimated by using the computed ~~computing~~ set and drift of vessels at or near ~~when approaching~~ the scene

Page 3-18: Replace the title “*Track Spacing*” to read as follows:

~~*Track Spacing*~~ *Sweep Width, Track Spacing, and Coverage*

Page 3-18: Delete the first two bullets:

- ~~• Most search patterns consist of parallel tracks or sweeps covering a rectangular area. The distance between adjacent tracks is called the track spacing.~~
- ~~• Recommended uncorrected track spacings for merchant vessels are provided in the table following this discussion. Correction factors based on weather conditions and search object are provided in the table after the track spacing table. Multiplying the uncorrected track spacing (S_U) by the appropriate weather correction factor (f_w) produces the recommended track spacing (S):~~

$$S = S_U \times f_w$$

Page 3-18: Add the following four bullets:

- **Sweep Width (W)** is an index or measure of the ease or difficulty of detecting a given search object with a given sensor under a given set of environmental conditions. Tables of “uncorrected” sweep width values based on search object and meteorological visibility for calm weather, and correction factors based on search object and weather conditions (f_w) are provided following this discussion. Multiplying the uncorrected sweep width value (W_U) by the appropriate weather correction factor produces the corrected sweep width (W_C):

$$W_C = W_U \times f_w$$

- Most search patterns consist of straight, parallel, equally spaced tracks covering a rectangular area. The distance between adjacent tracks is called the **Track Spacing (S)**.
- **Coverage (C)** is the ratio of the corrected sweep width (W_C) to the track spacing (S):

$$C = W_C / S$$

- The recommended coverage (C) for most situations is 1.0, which means the recommended track spacing (S) in most situations is the same as the corrected sweep width (W_C):

$$\text{Recommended } S = W_C$$

Page 3-18: The present third bullet becomes the fifth bullet with no changes to the text, as follows:

- Changes in weather, number of assisting craft, etc., may occur, making it prudent to alter the track spacing (S).

Page 3-18: Amend the last bullet as follows:

- ~~The SMC, or OSC if an OSC is designated by the SMC, must ensure that all~~ All searching ships and aircraft should maintain safe distances ~~separations~~ from one another and accurately follow their assigned search patterns.

Page 3-18: Amend title of table to read as follows:

Uncorrected sweep widths (W_U) for merchant vessels (km (NM))

Replace the present table with a copy of Table N-4 from Volume II as shown below.

Search object	Meteorological visibility (km (NM))				
	6 (3)	9 (5)	19 (10)	28 (15)	37 (20)
Person in water	0.7 (0.4)	0.9 (0.5)	1.1 (0.6)	1.3 (0.7)	1.3 (0.7)
4-person liferaft	4.2 (2.3)	5.9 (3.2)	7.8 (4.2)	9.1 (4.9)	10.2 (5.5)
6-person liferaft	4.6 (2.5)	6.7 (3.6)	9.3 (5.0)	11.5 (6.2)	12.8 (6.9)
15-person liferaft	4.8 (2.6)	7.4 (4.0)	9.4 (5.1)	11.9 (6.4)	13.5 (7.3)
25-person liferaft	5.0 (2.7)	7.8 (4.2)	9.6 (5.2)	12.0 (6.5)	13.9 (7.5)
Boat <5 m (17 ft)	2.0 (1.1)	2.6 (1.4)	3.5 (1.9)	3.9 (2.1)	4.3 (2.3)
Boat 7 m (23 ft)	3.7 (2.0)	5.4 (2.9)	8.0 (4.3)	9.6 (5.2)	10.7 (5.8)
Boat 12 m (40 ft)	5.2 (2.8)	8.3 (4.5)	14.1 (7.6)	17.4 (9.4)	21.5 (11.6)
Boat 24 m (79 ft)	5.9 (3.2)	10.4 (5.6)	19.8 (10.7)	27.2 (14.7)	33.5 (18.1)

Page 3-19: Delete the first two bullets as follows:

- ~~• The track spacings shown in the table above are recommended for use with all the search patterns shown in this Volume except for the sector search pattern.~~
- ~~• The table takes into account the type of search object and the meteorological visibility.~~

Amend the remaining bullet to read:

- In addition to the weather correction factors (f_W), Θ other factors may also be considered, including sea conditions such as time of day, position of the sun, effectiveness of observers, etc.

Amend the titles of the next two tables to add “(W_U)” for clarity:

Uncorrected sweep widths (W_U) for helicopters (km (NM))
Uncorrected sweep widths (W_U) for fixed-wing aircraft (km (NM))

Page 3-20:

Section on ***Searching Speed (V)***:

Amend the first two bullets as follows:

- ~~To carry out~~ perform a parallel sweep track search with several vessels moving together in a coordinated manner, all facilities vessels should proceed at the same speed, as directed by the OSC.
- When performing a coordinated search with several vessels moving together, the search speed This should normally be the maximum speed of the slowest ship vessel present under the prevailing conditions.

Page 3-21

Section on ***Search Patterns***:

Add the following note between ***Search Patterns*** and ***Expanding Square Search (SS)***:

It may be advisable for vessels, especially when searching for a person in the water with either an Expanding Square Search (SS) or a Sector Search (VS), to use dead reckoning (DR) navigation rather than more accurate navigational methods. DR navigation will minimize pattern distortion relative to the search object since it will automatically account for the currents affecting the search object's drift during the search. For both vessels and aircraft, if a smoke float or other highly visible, expendable object is available, it should be deployed at datum and the pattern should be performed relative to it. Precise search pattern navigation using high-precision methods such as global satellite navigation systems will produce good patterns relative to the ocean bottom, but not relative to the drifting search object. This could allow the search object to drift out of the search area before the search facility arrives in that vicinity.

Page 3-25

Table of *Sweep widths for visual land search (km (NM))*:

Add to the title: *Uncorrected* and (W_U) as shown below.

Uncorrected sweep widths (W_U) for visual land search (km (NM))

Search object	Height (m (ft))	Visibility (km (NM))				
		6 (3)	9 (5)	19 (10)	28 (15)	37 (20)
Person	150 (500)	0.7 (0.4)	0.7 (0.4)	0.9 (0.5)	0.9 (0.5)	0.9 (0.5)
	300 (1000)	0.7 (0.4)	0.7 (0.4)	0.9 (0.5)	0.9 (0.5)	0.9 (0.5)
	450 (1500)	—	—	—	—	—
	600 (2000)	—	—	—	—	—
Vehicle	150 (500)	1.7 (0.9)	2.4 (1.3)	2.4 (1.3)	2.4 (1.3)	2.4 (1.3)
	300 (1000)	1.9 (1.0)	2.6 (1.4)	2.6 (1.4)	2.8 (1.5)	2.8 (1.5)
	450 (1500)	1.9 (1.0)	2.6 (1.4)	3.1 (1.7)	3.1 (1.7)	3.1 (1.7)
	600 (2000)	1.9 (1.0)	2.8 (1.5)	3.7 (2.0)	3.7 (2.0)	3.7 (2.0)
Aircraft less than 5700 kg	150 (500)	1.9 (1.0)	2.6 (1.4)	2.6 (1.4)	2.6 (1.4)	2.6 (1.4)
	300 (1000)	1.9 (1.0)	2.8 (1.5)	2.8 (1.5)	3.0 (1.6)	3.0 (1.6)
	450 (1500)	1.9 (1.0)	2.8 (1.5)	3.3 (1.8)	3.3 (1.8)	3.3 (1.8)
	600 (2000)	1.9 (1.0)	3.0 (1.6)	3.7 (2.0)	3.7 (2.0)	3.7 (2.0)
Aircraft over 5700 kg	150 (500)	2.2 (1.2)	3.7 (2.0)	4.1 (2.2)	4.1 (2.2)	4.1 (2.2)
	300 (1000)	3.3 (1.8)	5.0 (2.7)	5.6 (3.0)	5.6 (3.0)	5.6 (3.0)
	450 (1500)	3.7 (2.0)	5.2 (2.8)	5.9 (3.2)	5.9 (3.2)	5.9 (3.2)
	600 (2000)	4.1 (2.2)	5.2 (2.9)	6.5 (3.5)	6.5 (3.5)	6.5 (3.5)

Page 3-25: Add a copy of Table N-10 (correction factors) from Volume II (as shown below).

Correction factors – vegetation and high terrain

Search Object	15-60% vegetation or hilly	60-85% vegetation or mountainous	Over 85% vegetation
Person	0.5	0.3	0.1
Vehicle	0.7	0.4	0.1
Aircraft less than 5,700 kg	0.7	0.4	0.1
Aircraft over 5,700 kg	0.8	0.4	0.1

Page 3-26

Amend the title: *Parallel track Sweep Search (PS)*:

Page 3-27:

Delete “Sweep” in the title of the figure: “*Parallel track ~~sweep~~ search (PS)*”

Amend the word “sweep” to “search” in the four sub-bullets under the heading:

- Multiple vessels may be used as shown on page 3-28:
 - Parallel track ~~sweep~~ search: for use by two ships.
 - Parallel track ~~sweep~~ search: for use by three ships.
 - Parallel track ~~sweep~~ search: for use by four ships.
 - Parallel track ~~sweep~~ search: for use by five or more ships.

Page 3-31:

Fourth bullet from the top of the page change as follows:

- In restricted visibility, or if sufficient search facilities are not available, it will probably be better to have the first facility break off the expanding square search and be available for initiation of a parallel track ~~sweep~~-search.

In the section on *Restricted Visibility*, change the first bullet as follows:

- A parallel track ~~sweep~~ search in restricted visibility poses problems because of the following considerations:

Page 3-32:

Amend the last word of the first sub-bullet at the top of the page:

- reduction in track spacing would require a reduction in the interval between SAR facilities and, thus, the carrying out of more tracks ~~sweeps~~.

Page 3-33

Section on *Visual Ground Search*:

Amend the third bullet from the top as follows:

- Land search facility patterns are normally parallel tracks ~~sweeps~~ or contour searches using a line-abreast formation.

Sixth bullet should be amended to read:

- *The parallel track ~~sweep~~ search:*

Amend the fourth sub-bullet under “*The parallel track search*” to read:

- boundary control of each successive pass ~~sweep~~ through an area is assigned to the pivoting flanker.

Amend the second sub-bullet under “The contour search:” to read:

- pattern is a modified parallel track sweep

Page 3-34:

Amend second sub-bullet from the top of the page to read:

- general procedures for a parallel track sweep search are followed.

Under the last bullet that begins, “Failure to locate...,” amend the third sub-bullet to read as follows:

- failure to sight the search object during the search although it was in the search area. This is most likely to occur if the search object is a small craft, a survival craft, survivors in the water, a light aircraft forced down in rough or densely vegetated terrain, or survivors in rough or densely vegetated terrain. In the case of aircraft forced down in a forested area, the best indicator may be broken treetops.

Page 3-37:

In the second bullet that begins, “Unless a time...,” replace the word “execute” with “perform.”

- Unless a time is specified in the text, individual ships should proceed as necessary to perform ~~execute~~ the purpose of the message on receipt.

PROPOSED AMENDMENTS TO THE IAMSAR MANUAL – VOLUME III

1 Section 2

- Page 2-36

Insert a footnote after the heading:

- Recovery of survivors by assisting vessels*¹

Text to be shown at the bottom of the page:

¹ Additional information to be found in the pocket guide to Recovery Techniques – IMO 2007 edition.
