Subject

S-VDR for Ships Constructed before 1 July 2002 and Shore-based Maintenance of Satellite EPIRBs
(for Non-Japanese Ships)

ClassNK
# Technical Information

No. TEC-0664
Date 23 June 2006

To whom it may concern

This is to notify the procedures of surveys of S-VDR to be fitted on board ships constructed before 1 July 2002 and of shore-based maintenance of satellite EPIRBs fitted on board ships, which are required by the 2004 amendments to SOLAS 1979 entering into force on 1 July 2006.

1. Installation of S-VDR

(1) Implementation Schedule of Installation

An S-VDR is to be fitted on board in accordance with regulation V/20.2 of SOLAS, 1974, as amended, as follows:

(i) In the case of cargo ships of 20,000 gross tonnage and upwards, at the first dry-docking after 1 July 2006 but not later than 1 July 2009.

(ii) In the case of cargo ships of 3,000 gross tonnage and upwards but less than 20,000 gross tonnage, at the first dry-docking after 1 July 2007 but not later than 1 July 2010.

(2) Performance Standards and Installation

An S-VDR is to be of a type-approved in accordance with performance standards specified in IMO Resolution MSC.163(78). In case where a VDR is installed as a substitution for an S-VDR, the VDR is to be of a type-approved in accordance with performance standards specified in IMO Resolution A.861(20).

Here are the main points for installation.

(i) Final recording medium is to be installed in a protective capsule of either a fixed or float-free type.

(ii) In case of failure of the S-VDR, an audible and visible alarm should be given in the wheel house.

(iii) If an interface unit is available from the radar manufacturer and can be built in the radar, radar data are to be recorded. However, if it is impossible to supply radar data to S-VDR then AIS data are to be recorded. AIS data may optionally be recorded in addition to radar data.

(iv) Electrical power of an S-VDR is to be supplied from ship's main source and emergency source. Emergency source is to be capable of supplying its power for 18 hours. In case where batteries are used as emergency source, a battery capacity calculation sheet is to be submitted as an additional document to those listed on (4) (i) – (v) below.

(To be continued)

(3) Data Items

Data items (i) below are those to be essentially recorded. Data items (ii) below are additional data items to be optionally recorded.

(i) Data Items to be recorded

Date and time, ship's position, speed, heading, bridge audio, communications audio, radar data and/or AIS data

(ii) Other items

Any additional data items (such as Depth, rudder angle, engine telegraph order/response, propeller revolution, alarms, etc.) other than data items on (i) above, listed by IMO resolution A.861(20), regarding performance standards of VDR, may be recorded when the data is available in accordance with the international digital interface standards, i.e. IEC61162-1 sentence.

(4) Approval of Drawings

Please submit each three copies of the following drawings for examination to Material and Equipment Dept., of ClassNK Head Office. Each one copy of them is returned to the applicant after approval.

(i) S-VDR components List
(ii) List of connected equipment and recording data description
(iii) Connection diagram
(iv) Arrangement of S-VDR components
(v) Copy of Certificate of Type Approval

(5) Survey

After installation of the S-VDR, please prepare a "List of Ship's Information" and an "Installation Checklist" on manufacturer's forms, and submit them to the surveyor.

The surveyor verifies data recorded from navigational equipment, bridge audio and communications audio on a playback device.

After completion of the survey, an SE Certificate and a Record (Form-E) with description of installation of the S-VDR are issued.

2. Maintenance of Satellite EPIRBs

Shore-based maintenance of satellite EPIRBs is required on and after 1 July 2006 in accordance with regulation IV/15.9 of SOLAS 1974 as amended in addition to existing annual tests on board.

(1) Shore-based Maintenance

Shore-based maintenance by an approved shore-based maintenance (SBM) provider is necessary at intervals not exceeding five years. The maintenance is carried out in accordance with IMO MSC/Circ.1039.

(To be continued)

(2) Implementation Schedule of Shore-based Maintenance

Please undergo the first shore-based maintenance on or before the following date whichever comes first, and thereafter, perform the maintenance at intervals not exceeding five years.

- The first battery change of a satellite EPIRB on or after 1 July 2006, or
- The first renewal of Cargo Ship Safety Radio Certificate on or after 1 July 2006 (in case of ships of HSSC), or
- The nearest renewal of Cargo Ship Safety Radio Certificate (ships other than HSSC) or Passenger Ship Safety Certificate before 30 June 2011.

(3) Shore-based Maintenance Providers

ClassNK accepts its approved radio firms, which meet the condition for a shore-based maintenance provider, and satellite EPIRB manufacturer's sites as shore-based maintenance (SBM) providers ClassNK approved SBM providers are available on our Home Page at "Table 1.2.3 Approved Radio Firms Engaged in Services on Ships" of "Approval List", with a URL: http://www.classnk.or.jp/hp/appr_list/svd/search.asp

An SBM provider issues a "Shore-based Maintenance Report" upon completion of the maintenance.

(4) Survey

A ClassNK surveyor verifies the latest report at an SR survey.

(5) Annual Tests

Implementation schedule of annual tests are amended as follows:

- On passenger ships, within 3 months before the expiry date of the Passenger Ship Safety Certificate; and
- On cargo ships, within 3 months before the expiry date, or 3 months before or after the anniversary date, of the Cargo Ship Safety Radio Certificate.

Annual tests are carried out in accordance with IMO MSC/Circ.1040 as same as before.

A shore-based maintenance may be acceptable as one of annual tests because its test items include all those of an annual test.

For any questions about the above, please contact:

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Attachment:
1. IMO Resolution MSC.163(78)
2. IMO MSC/Circ.1039
3. IMO MSC/Circ.1040

# ANNEX 26

## RESOLUTION MSC.163(78)
## (adopted on 17 May 2004)

## PERFORMANCE STANDARDS FOR SHIPBORNE SIMPLIFIED VOYAGE DATA RECORDERS (S-VDRs)

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO resolution A.886(21), by which the Assembly resolved that the functions of adopting performance standards for radio and navigational equipment, as well as amendments thereto, shall be performed by the Maritime Safety Committee on behalf of the Organization,

NOTING that the provisions of regulation V/20 of the International Convention for the Safety of Life at Sea, 1974, as amended, do not apply to the existing cargo ships with respect to the carriage requirements of voyage data recorders (VDRs),

RECALLING FURTHER resolution MSC.109(73), by which the Committee decided that a study should be carried out, as a matter of urgency, to assess the feasibility for existing cargo ships to carry VDRs and instructed the Sub-Committee on Safety of Navigation accordingly,

NOTING ALSO that the report on the feasibility study clearly demonstrates the compelling need for mandatory carriage of a simplified version of VDRs on existing cargo ships,

HAVING CONSIDERED the recommendation made by the Sub-Committee on Safety of Navigation at its forty-ninth session,

1. ADOPTS the Recommendation on Performance Standards for Shipborne Simplified Voyage Data Recorders (S-VDRs);

2. INVITES Governments to encourage shipowners and operators of the existing cargo ships entitled to fly their flag to install S-VDRs on such ships, as soon as possible, especially considering that the carriage of S-VDRs may soon be mandatory under the SOLAS Convention;

3. RECOMMENDS Governments to ensure that S-VDRs installed on board the existing cargo ships flying their flag conform to performance standards not inferior to those specified in the Annex to this resolution.

ANNEX

# RECOMMENDATION ON PERFORMANCE STANDARDS FOR SHIPBORNE SIMPLIFIED VOYAGE DATA RECORDERS (S-VDRs)

## 1 PURPOSE

1.1 The purpose of a simplified voyage data recorder (S-VDR) is to maintain a store, in a secure and retrievable form, of information concerning the position, movement, physical status, command and control of a vessel over the period leading up to and following an incident having an impact thereon. Information contained in a S-VDR should be made available to both the Administration and the shipowner. This information is for use during any subsequent investigation to identify the cause(s) of the incident.

## 2 APPLICATION

2.1 A S-VDR with capabilities not inferior to those defined in these performance standards is required to be fitted to ships of classes defined in SOLAS chapter V, as amended.

## 3 REFERENCES

3.1 SOLAS:

- 1995 SOLAS Conference, resolution 12.

3.2 IMO resolutions:

- A.662(16) Performance Standards for Float-free Release and Activation Arrangements for Emergency Radio Equipment
- A.694(17) General Requirements for Shipborne Radio Equipment Forming Part of the GMDSS and for Electronic Navigational Aids
- A.802(19) Performance Standards for Survival Craft Radar Transponders for use in Search and Rescue Operations
- A.810(19) Performance Standards for Float-free Satellite Emergency Position-Indicating Radio Beacons Operating on 406 MHz
- A.812(19) Performance standards for float-free satellite emergency position indicating radio beacons operating through the geostationary Inmarsat satellite system on 1.6 GHz
- A.824(19) Performance Standards for Devices to Indicate Speed and Distance
- A.830(19) Code on Alarms and Indicators, 1995
- A.861(20) Performance Standards for Shipborne Voyage Data Recorders (VDRs)

- MSC.64(67), annex 3 Performance Standard for Heading Control Systems

- MSC.64(67), annex 4 Performance Standards for Navigational Radar Equipment, as amended.

## 4 DEFINITIONS

4.1 *Simplified Voyage data recorder (S-VDR)* means a complete system, including any items required to interface with the sources of input data, for processing and encoding the data, the final recording medium, the power supply and dedicated reserve power source.

4.2 *Sensor* means any unit external to the S-VDR, to which the S-VDR is connected and from which it obtains data to be recorded.

4.3 *Final recording medium* means the item of hardware on which the data is recorded such that access to it would enable the data to be recovered and played back by use of suitable equipment.

4.4 *Playback equipment* means the equipment, compatible with the recording medium and the format used during recording, employed for recovering the data. It includes also the display or presentation hardware and software that is appropriate to the original data source equipment.[1]

4.5 *Dedicated reserve power source* means a secondary battery, with suitable automatic charging arrangements, dedicated solely to the S-VDR, of sufficient capacity to operate it as required by 5.3.2.

## 5 OPERATIONAL REQUIREMENTS

### 5.1 General

5.1.1 The S-VDR should continuously maintain sequential records of preselected data items relating to the status and output of the ship's equipment, and command and control of the ship, referred to in 5.4.

5.1.2 To permit subsequent analysis of factors surrounding an incident, the method of recording should ensure that the various data items can be co-related in date and time during playback on suitable equipment.

5.1.3 Final recording medium

5.1.3.1 The final recording medium should be installed in a protective capsule of either a fixed or float-free type, which should meet all of the following requirements:

.1 be capable of being accessed following an incident but secure against tampering;

[1] Playback equipment is not normally installed on a ship and is not regarded as part of a S-VDR for the purposes of these performance standards.

.2 maintain the recorded data for a period of at least 2 years following termination of recording;

.3 be of a highly visible colour and marked with retro-reflective materials; and

.4 be fitted with an appropriate device to aid location.

5.1.3.2 The fixed type protective capsule should comply with the requirements set out in resolution A.861(20) with the exception of the resulting requirements for withstanding penetration.

5.1.3.3 The float-free type protective capsule should:

.1 be fitted with means to facilitate grappling and recovery;

.2 be so constructed as to comply with the requirements specified in resolutions A.810(19) or A.812(19) and to minimize risk of damage during recovery operations; and

.3 the device should be capable of transmitting an initial locating signal and further locating homing signal for at least 48 hours over a period of not less than 7 days/168 hours.

5.1.4 The design and construction, which should be in accordance with the requirements of resolution A.694(17) and international standards acceptable to the Organization[2], should take special account of the requirements for data security and continuity of operation as detailed in 5.2 and 5.3.

## 5.2 Data selection and security

5.2.1 The minimum selections of data items to be recorded by the S-VDR are specified in 5.4. Optionally, additional items may be recorded provided that the requirements for the recording and storage of the specified selections are not compromised.

5.2.2 The equipment should be so designed that, as far as is practical, it is not possible to tamper with the selection of data being input to the equipment, the data itself nor that which has already been recorded. Any attempt to interfere with the integrity of the data or the recording should be recorded.

5.2.3 The recording method should be such that each item of the recorded data is checked for integrity and an alarm given if a non-correctable error is detected.

## 5.3 Continuity of operation

5.3.1 To ensure that the S-VDR continues to record events during an incident, it should be capable of operating from the ship's emergency source of electrical power.

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[2] Refer to publication IEC 60945 - Maritime navigation and radiocommunication equipment and systems - General requirements, methods of testing and required test results.

5.3.2 If the ship's emergency source of electrical power supply fails, the S-VDR should continue to record Bridge Audio (see 5.4.5) from a dedicated reserve source of power for a period of 2 h. At the end of this 2 h period all recording should cease automatically.

5.3.3 Recording should be continuous unless interrupted briefly in accordance with 6 or terminated in accordance with 5.3.2. The time for which all stored data items are retained should be at least 12 h. Data items which are older than this may be overwritten with new data.

## 5.4 Data items to be recorded

**Date and time**

5.4.1 Date and time, referenced to UTC, should be obtained from a source external to the ship or from an internal clock. The recording should indicate which source is in use. The recording method should be such that the timing of all other recorded data items can be derived on playback with a resolution sufficient to reconstruct the history of the incident in detail.

**Ship's position**

5.4.2 Latitude and longitude, and the datum used, should be derived from an electronic position-fixing system (EPFS). The recording should ensure that the identity and status of the EPFS can always be determined on playback.

**Speed**

5.4.3 Speed through the water or speed over the ground, including an indication of which it is, derived from the ship's speed and distance measuring equipment.

**Heading**

5.4.4 As indicated by the ship's compass.

**Bridge Audio**

5.4.5 One or more microphones positioned on the bridge should be placed so that conversation at or near the conning stations, radar displays, chart tables, etc., are adequately recorded. As far as practicable, the positioning of microphones should also capture intercom, public address systems and audible alarms on the bridge.

**Communications Audio**

5.4.6 VHF communications relating to ship operations should be recorded.

**Radar data, post-display selection**

5.4.7 This should include electronic signal information from within one of the ship's radar installations which records all the information which was actually being presented on the master display of that radar at the time of recording. This should include any range rings or markers, bearing markers, electronic plotting symbols, radar maps, whatever parts of the SENC or other electronic chart or map that were selected, the voyage plan, navigational data, navigational

alarms and the radar status data that were visible on the display. The recording method should be such that, on playback, it is possible to present a faithful replica of the entire radar display that was on view at the time of recording, albeit within the limitations of any bandwidth compression techniques that are essential to the working of the S-VDR.

**AIS Data**

5.4.8 If it is impossible to obtain radar data[3] then AIS target data should be recorded as a source of information regarding other ships. If radar data is recorded, AIS information may be recorded additionally as a beneficial secondary source of information on both other and own ship.

**Other items**

5.4.9 Any additional data items listed by IMO with the requirements set out in resolution A.861(20) should be recorded when the data is available in accordance with the international digital interface standards[4] using approved sentence formatters.

## 6 OPERATION

6.1 The unit should be entirely automatic in normal operation. Means should be provided whereby recorded data may be saved by an appropriate method following an incident, with minimal interruption to the recording process.

## 7 INTERFACING

7.1 Interfacing to the various sensors required should be in accordance with the relevant international interface standards, where possible. Any connection to any item of the ship's equipment should be such that the operation of that equipment suffers no deterioration, even if the S-VDR system develops faults.

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[3] Where commercial off the shelf (COTS) interfaces are not available.
[4] Refer to publication IEC 61162

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Ref. T2/6.01

MSC/Circ.1039
28 May 2002

# GUIDELINES FOR SHORE-BASED MAINTENANCE OF SATELLITE EPIRBs

1 The Maritime Safety Committee, at its seventy-fifth session (15 to 24 May 2002), approved Guidelines for shore-based maintenance of satellite EPIRBs, for the purpose of establishing standardized procedures and minimum levels of service for the testing and maintenance of satellite EPIRBs to ensure maximum reliability whilst minimizing the risk of false distress alerts.

2 Member Governments are invited to bring the annexed Guidelines to the attention of shore-based maintenance providers, equipment manufacturers, classification societies, shipping companies, shipowners, ship operators, shipmasters and all other parties concerned.

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**ANNEX**

**GUIDELINES FOR SHORE-BASED MAINTENANCE OF SATELLITE EPIRBs**

## 1 Introduction

1.1 The purpose of these guidelines is to establish standardised procedures and minimum levels of service for the testing and maintenance of satellite EPIRBs to ensure maximum reliability whilst minimising the risk of false distress alerting.

1.2 The guidelines are intended to be applicable both to 406 MHz EPIRBs and to L-band EPIRBs, as either type may be carried to comply with the requirements of SOLAS regulation IV/7.1.6. EPIRBs may include 121.5 MHz transmitters, or Global Navigation Satellite System (GNSS) receivers.

1.3 The guidelines also apply to service exchange EPIRBs which should be properly encoded to match the appropriate registration database.

## 2 Shore-based maintenance (SBM) provider

2.1 The SBM provider should:

.1 have a quality control system audited by a competent authority in respect of its servicing operation;

.2 have access to adequate calibrated test equipment and facilities to carry out the SBM in accordance with these guidelines;

.3 have access to batteries and other spare parts to the original equipment specification;

.4 have access to up-to-date technical manuals, service bulletins and the latest software versions as provided by the original equipment manufacturer;

.5 keep records of maintenance, available for inspection by the Administration as may be required;

.6 ensure that all personnel responsible for supervising and for carrying out the maintenance procedures are adequately trained and fully competent to perform their duties; and

.7 issue a shore-based maintenance report with a list of the test results and maintenance performed.

## 3 Prevention of false distress alerts

3.1 Throughout the testing and maintenance process, **great care must be taken to avoid the transmission of false distress alerts.** The transmissions may be picked up by aircraft as well as satellites.

3.2 A radio-frequency-screened room or enclosure should be used for all maintenance procedures involving, or likely to involve, any transmission from an EPIRB.

3.3 Provision of a 121.5 MHz monitor receiver is required; this will pick up the homing transmitter and give a warning if the EPIRB is accidentally activated outside the screened enclosure.

3.4 If a distress signal is transmitted accidentally, the local RCC should be contacted immediately and informed of the co-ordinates of the test site.

## 4 Maintenance service interval

4.1 406 MHz satellite EPIRBs should be inspected and tested in accordance with MSC/Circ.1040.

4. 2 Shore-based maintenance of all satellite EPIRBs, as defined in paragraph 1.2, should be carried out in accordance with these guidelines at intervals specified by the flag Administration and not exceeding 5 years. It is recommended that the maintenance be performed at the time when the battery is to be changed.

## 5 Self-test

5.1 Prior to carrying out any maintenance and, upon completion, a self-test should be performed, following the instructions on the equipment, and the results noted.

5.2 Attention is drawn to paragraph 3 on the prevention of false distress alerts. Avoidance of live transmissions is required to prevent unnecessary loading of the satellite channels.

5.3 It should be verified that the self-test mode operates properly. This check could be performed by holding the switch in self-test mode position for 1 min after the first self-test mode burst transmission. All transmissions should cease after releasing the self-test mode switch. Additionally, for 406 MHz satellite EPIRBs which received the COSPAS-SARSAT type approval after October 1998 (Type Approval Certificates 106 and higher) the number of self-test bursts should be verified to be no more than one.

## 6 Battery change

6.1 The main battery should be changed in accordance with the manufacturer's recommendations, including the replacement of any other routine service parts (e.g. seals, memory battery, desiccant).

6.2 The removed batteries should be disposed of in accordance with the manufacturer's and/or national/local recommendations.

6.3 After having changed the battery, the new expiration date should be displayed on the exterior surface of the EPIRB.

## 7 Satellite distress transmission

7.1 The satellite EPIRB should be activated in its normal transmitting mode (i.e. not just self-test). Attention is drawn to paragraph 3 on the prevention of false distress alerts. Where seawater contacts are fitted, these should be connected together to activate the EPIRB.

7.2 The transmitted signal should be checked with a suitable test receiver to verify the signal integrity and coding.

7.3 The frequency of the transmitted signal should be recorded and verified to be within the limits required by the specification to which it is approved.

7.4 The output power of the transmitter should be checked in the self-test mode. A simple method of the emission verification, such as a low sensitivity receiver placed at an unobstructed distance of at least 3 m from the EPIRB antenna, may be used for this check. The original equipment manufacturer may suggest an appropriate method to verify the output power. Attention is drawn to paragraph 3 on the prevention of false distress alerts.

## 8 121.5 MHz homing transmission

8.1 The satellite EPIRB should be activated in it's normal transmitting mode (i.e. not just self-test). Attention is drawn to paragraph 3 on the prevention of false distress alerts. Where seawater contacts are fitted, these should be connected together to activate the EPIRB.

8.2 The transmitted signal should be checked with a suitable test receiver for the characteristic swept tone modulation.

## 9 Global Navigation Satellite System (GNSS)

9.1 Some satellite EPIRBs are designed to transmit a position derived from a GNSS receiver, which may be internal or external to the EPIRB.

9.2 The original equipment (EPIRB) manufacturer should be consulted for a method of testing the correct operation of this function, e.g.: by using a GNSS repeater/simulator or external input. This test may involve a live transmission from the EPIRB and should be performed in a screened room or enclosure in accordance with paragraph 3.2. Attention is drawn to paragraph 3 on the prevention of false distress alerts.

9.3 A test receiver should be used to verify that the signal transmitted by the satellite EPIRB contains the correctly encoded position data derived from the GNSS receiver. Attention is drawn to paragraph 3 on the prevention of false distress alerts.

## 10 Waterproof integrity

10.1 The satellite EPIRB should be inspected for any signs of damage or cracks to the casing, or of water ingress. Any damaged item should be replaced in accordance with the manufacturer's recommended procedures.

10.2 The satellite EPIRB should be tested for waterproof integrity at the end of the SBM. The equipment manufacturer may suggest an appropriate method to test the integrity of the EPIRB.

10.3 One method involves immersing the equipment in hot water (20-30$^{o}$C above ambient) for a period of 1 min. It can be readily seen if there are any problems with the seals, as the air inside the beacon expands and escapes as a stream of bubbles. This test should not be carried out with cool water, as the water may be drawn into the equipment without showing significant release of air bubbles.

10.4 Satellite EPIRBs equipped with seawater switches should have this function disabled during the immersion test to prevent activation, unless the complete test is performed inside a screened room. This disabling may be achieved by immersing the EPIRB complete with a mounting bracket if the bracket includes an interlock to prevent activation before release. In some cases the EPIRB contains an inversion switch, so it will not be activated if immersed in the inverted position. The manufacturer should be consulted for specific guidance.

## 11 Labelling

11.1 As a minimum, the equipment external labelling should be checked for the following details:

.1 manufacturer's serial number. This identifies the equipment, even if the programmed data (e.g. MMSI or callsign) is later changed;

.2 the transmitted identification code:

- for L-band EPIRBs, it will be the Inmarsat System Code; and

- for 406 MHz EPIRBs, this will be the beacon 15 Hexadecimal Identification (15 Hex ID) and other encoded identification information (MMSI / callsign) as required by the Administration. It should be verified that the label matches the information decoded from the self-test mode transmission using the test receiver. For the COSPAS-SARSAT location protocol beacons, the 15 Hex ID should correspond to position data set to default values;

.3 the expiration date of the battery; and

.4 the date when the next shore-based maintenance is due (see paragraph 12.1).

11.2 The above checks also apply if a replacement EPIRB is provided by the SBM provider.

## 12 Shore-based maintenance report and other documentation

12.1 The results of shore-based maintenance should be provided in the form of a shore-based maintenance report, a copy of which is to be kept on board, and a label affixed to the exterior of the beacon detailing the name of the SBM provider and the date when the next shore-based maintenance is due.

12.2 The SBM provider may affix a tamperproof seal or similar device on completion of the SBM.

12.3 Before returning the beacon to the owner, or when providing a replacement beacon, the SBM provider should check the registration details with the beacon registry, where practicable.

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MSC/Circ.1040
28 May 2002

# GUIDELINES ON ANNUAL TESTING OF 406 MHZ SATELLITE EPIRBs

1 The Maritime Safety Committee, at its seventy-fifth session (15 to 24 May 2002), approved the annexed Guidelines on annual testing of 406 MHz satellite EPIRBs, as required by new SOLAS regulation IV/15.9, which enters into force on 1 July 2002.

2 Member Governments are invited to bring these Guidelines to the attention of shipping companies, shipowners, ship operators, equipment manufacturers, classification societies, shipmasters and all parties concerned.

3 This circular supersedes MSC/Circ.882.

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## ANNEX

## GUIDELINES ON ANNUAL TESTING OF 406 MHz SATELLITE EPIRBs

1 The annual testing of 406 MHz satellite EPIRBs is required by new SOLAS regulation IV/15.9 entering into force on 1 July 2002.

2 The testing should be carried out using suitable test equipment capable of performing all the relevant measurements required in these guidelines. All checks of electrical parameters should be performed in the self-test mode, if possible.

3 The examination of the installed 406 MHz satellite EPIRB should include:

.1 checking position and mounting for float-free operation;

.2 verifying the presence of a firmly attached lanyard in good condition; the lanyard should be neatly stowed, and must not be tied to the vessel or the mounting bracket;

.3 carrying out visual inspection for defects;

.4 carrying out the self-test routine;

.5 checking that the EPIRB identification (15 Hex ID and other required information) is clearly marked on the outside of the equipment;

.6 decoding the EPIRB 15 Hexadecimal Identification Digits (15 Hex ID) and other information from the transmitted signal, checking that the decoded information (15 Hex ID or MMSI/callsign data, as required by the Administration) is identical to the identification marked on the beacon;

.7 checking registration through documentation or through the point of contact associated with that country code;

.8 checking the battery expiry date;

.9 checking the hydrostatic release and its expiry date, as appropriate;

.10 checking the emission in the 406 MHz band using the self-test mode or an appropriate device to avoid transmission of a distress call to the satellites;

.11 if possible, checking emission on the 121.5 MHz frequency using the self-test mode or an appropriate device to avoid activating the satellite system;

.12 checking that the EPIRB has been maintained by an approved shore-based maintenance provider at intervals required by the Administration;

.13 after the test, remounting the EPIRB in its bracket, checking that no transmission has been started; and

.14 verifying the presence of beacon operating instructions.

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