



## **LRIT REVIEW AND AUDIT STANDARDS AND PROCEDURES FOR AUDITING THE PERFORMANCE OF LRIT DATA CENTRES AND THE INTERNATIONAL LRIT DATA EXCHANGE**

(as agreed by the Twenty-Fifth Session of the IMSO Advisory Committee)

### **1. Introduction**

1.1 The International Mobile Satellite Organization (IMSO) was appointed<sup>1</sup> by the Maritime Safety Committee (MSC) of the International Maritime Organization (IMO) as the **LRIT Coordinator** and assigned to perform the tasks specified in section 14 of resolution MSC.263(84), Revised Performance Standards and Functional Requirements for the LRIT of Ships. These tasks include:

- .1 reviewing the performance of the LRIT system in general;
- .2 auditing the performance of all LRIT Data Centres (DC) and the International LRIT Data Exchange (IDE) based on their archived information; and
- .3 reporting on the audit of the performance of the DC(s) and the IDE, to the MSC at least annually.

1.2 The purpose of these standards and procedures is to set out the general arrangements for the annual audit and review of LRIT DCs and the IDE and the specific detailed actions needed to be followed by LRIT DCs and the IDE when being reviewed and audited by the LRIT Coordinator.

1.3 The audit and review process will be carried out generally in accordance with the principles of ISO 19011:2002 on Guidelines for quality and/or environmental management systems auditing; and specifically in accordance with the Principles and guidelines relating to the review and audit of the performance of LRIT Data Centres and of the International Data Exchange (MSC 86/26/Add.1, Annex 6).

### **2. Definitions**

2.1 For the purposes of these standards and procedures, the following terms have the meanings attributed below:

#### **Audit**

The audit is the process of reviewing, analyzing and evaluating the performance of all DCs and the IDE based on their archived information.

#### **Audit client**

The audit client is all Contracting Governments to the 1974 SOLAS Convention acting through the Maritime Safety Committee (MSC) of the International Maritime Organization (IMO).

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<sup>1</sup> Resolution MSC.275(85), Appointment of the LRIT Coordinator

**Auditor**

The auditor is the International Mobile Satellite Organization (IMSO) acting in its capacity as the LRIT Coordinator.

**Auditee(s)**

The auditees are all LRIT Data Centres (DCs) and the International LRIT Data Exchange (IDE).

**Audit evidence**

Audit evidence is described in section 7 of this document.

**Audit date**

The date on which the LRIT Coordinator will begin the audit analysis and by which the LRIT Coordinator must therefore have received the audit evidence.

**Audit report**

The audit report could be either in physical or electronic form and is composed of the record of audit procedures performed, relevant audit evidence obtained and the conclusions of the auditor.

**Revised Performance Standards**

The Revised Performance Standards are contained in resolution MSC.263(84), Revised Performance Standards and Functional Requirements for the Long Range Identification and Tracking of Ships.

**Technical specifications for the LRIT system**

The Technical specifications for the LRIT system are contained in MSC.1/Circ.1259/Rev.2 and MSC.1/Circ.1294.

**3. Audit objectives**

- 3.1 The objectives of the review and audit of the performance of DCs and the IDE are to:
- .1 verify that the LRIT system operates in accordance with the provisions of SOLAS regulation V/19-1 and of the Revised performance standards, taking into account the related provisions of the Technical specification for the LRIT system and any relevant decisions of the MSC;
  - .2 verify that DCs operate in accordance with the provisions of SOLAS regulation V/19-1 and of the Revised Performance Standards, taking into account the related provisions of the Technical Specification for the LRIT system and any relevant decisions of the MSC;
  - .3 verify that Contracting Governments and Search and Rescue Services receive only the LRIT information they have requested and are entitled to receive;
  - .4 verify that the IDE operates in accordance with the provisions of SOLAS Regulation V/19-1 and of the Revised Performance Standards, taking into account the related provisions of the Technical Specification for the LRIT system and any relevant decisions of the MSC;
  - .5 identify any need for initiating corrective and/or preventative actions in the LRIT system; and

- .6 identify opportunities for improving the efficiency, effectiveness and security of the LRIT system.

#### **4. Audit criteria**

4.1 The main criteria for the audit are SOLAS regulation V/19-1 and the Revised Performance Standards.

4.2 The supplementary criteria are the Technical Specification for the LRIT system; guidance, guidelines and recommendations approved or adopted by the MSC in relation to the LRIT system; and instructions of the MSC to the LRIT Coordinator in connection with the review and audit of the performance of the DCs and of the IDE.

The documents specifying and setting out the main and supplementary criteria are listed on the IMO web site ([www.imo.org](http://www.imo.org)) under "LRIT". These documents are subject to amendment by IMO from time to time, and care should be taken always to refer to the latest version.

#### **5. Audit scope**

5.1 The scope of the audit is limited to matters relating to the operation of the DCs and of the IDE to the extent that such matters can be reasonably and with confidence verified through the audit evidence.

5.2 Matters relating to the implementation of the provisions of SOLAS regulation V/19-1 and of the Revised Performance Standards by Contracting Governments are outside the scope of the audit. Specifically, all matters which would require the provision to the LRIT Coordinator of list(s) of ships which at any time are required to transmit LRIT information in accordance with the provisions of SOLAS Regulation V/19-1.4.1 are outside the scope of the audit.

5.3 The LRIT Coordinator is not required to audit the fee structures of the auditees.

5.4 The audit specification does not call for an onsite visit to the physical location(s) of the auditee(s). However, if the auditee(s) explicitly requests such a visit(s) prior to audit planning, then the LRIT Coordinator may carry out a site visit and include its observations in the audit report(s). In this case, the auditee will be required to cover all the associated costs of the LRIT Coordinator for performing such visit in accordance with the LRIT Coordinator's Terms of Business and published charges.

#### **6. Responsibilities**

6.1 In relation to the annual audit and review of an LRIT DC or the IDE, the LRIT Coordinator will:

- .1 seek to conduct a fair, consistent, professional, independent and evidence-based audit;
- .2 provide all necessary information, in the form of plans, procedures and guidance notes, to the auditee in relation to the audit in sufficient time before the audit;
- .3 prepare and complete the audit report;
- .4 provide details of any audit finding to the auditee and provide the auditee with a sufficient opportunity to respond to such findings;

- .5 agree a programme for any corrective actions proposed to be undertaken by the auditee and verify any completed outcomes within a reasonable timescale;
  - .6 submit the final audit report to the MSC at its next regular session.
- 6.2 On its part, the auditee will be expected to:
- .1 sign the IMSO LRIT Services Agreement, or other document incorporating the Statement of Goals and Objectives<sup>2</sup>, before any audit takes place;
  - .2 settle its financial obligations *vis-à-vis* the LRIT Coordinator in accordance with the provisions of IMSO LRIT Business Plan<sup>3</sup> before the final audit report is submitted to the MSC;
  - .3 cooperate and make available to the LRIT Coordinator the information and audit evidence required to enable the satisfactory completion of an audit of its performance;
  - .4 discharge its responsibilities in relation to the audit in a timely manner; and
  - .5 agree with the LRIT Coordinator and implement a programme of corrective actions to address any significant non-conformities.

## 7. Audit evidence

7.1 To enable the LRIT Coordinator to undertake an annual audit of the performance of any DC or the IDE, the LRIT Coordinator will call for evidence in written and electronic form to be provided by the auditee and, in some cases, by the IDE.

7.2 The audit evidence required will consist of, as a minimum:

- .1 completed Audit Questionnaire;
- .2 sample data (LRIT information, messages and journals) based on the archived information (provided by the auditee and the IDE)
- .3 statistics compiled by the auditee;
- .4 records of relevant communications between the LRIT Coordinator and the auditee;
- .5 data and information contained in the production environment of the LRIT Data Distribution Plan (obtained from the DDP Server); and
- .6 any other information required by the LRIT Coordinator or provided by the auditee.

7.3 The Audit Questionnaire is intended to replace the necessity for a site visit (see paragraph 5.4) by the LRIT Coordinator. It will include questions relating to the

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<sup>2</sup> Approved by the IMSO Assembly.

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administrative, infrastructure, technical and operational aspects of the DC or IDE implementation, in so far as they fall within the scope of the audit.

7.4 In addition, the LRIT Coordinator may seek to obtain audit evidence from Search and Rescue services that have themselves requested LRIT information from the DC concerned during the audit period.

7.5 The DC being audited is required to provide at least one sample of LRIT information and LRIT messages which covers 30 consecutive calendar days (the 30 day sample) during the period which is to be covered by the audit. The LRIT Coordinator will propose, in the pre-audit letter, the first and last date to be covered by the 30 day sample and seek the agreement of the auditee to these dates. In the event of any unresolved difference concerning the dates of the 30 day sample, the LRIT Coordinator's decision will prevail.

7.6 In view of the number of DCs participating in the LRIT system and subject to audit, the LRIT Coordinator will seek agreement with the IDE operator concerning the practical arrangements for the provision of IDE journals to support DC audits and the audit of the IDE itself.

7.7 All correspondence, records, communications, audit evidence and audit plans and procedures should be in the English language.

7.8 The LRIT Coordinator will not normally submit any of the audit evidence itself for consideration by the MSC.

7.9 The LRIT Coordinator has established security systems and procedures intended to ensure, so far as is possible, that all confidential audit evidence is protected from unauthorized access or disclosure from the time that it is received by the LRIT Coordinator. Until the audit evidence is received by the LRIT Coordinator, its security remains the responsibility of the auditee.

7.10 In order to protect the information whilst it is in transit from the auditee to the LRIT Coordinator, the LRIT Coordinator may from time to time make recommendations on the means of transmission and encryption of electronic data. The method, content and format for providing sample electronic data is outlined in Guidance Notes for LRIT Data Centres and the International LRIT Data Exchange for Providing Sample Audit Data to the LRIT Coordinator, promulgated by IMSO.

7.11 Depending on the content and size of the statistics and records, the LRIT Coordinator may request that evidence be provided as recorded on paper or on electronic media.

7.12 The audit evidence required for any specific audit will be described in detail in the pre-audit letter, sent by the LRIT Coordinator to notify the auditee of an impending audit (see section 10).

7.13 The LRIT Coordinator will retain and protect necessary audit evidence and data in a secure environment until the audit report has been considered and accepted by the MSC, or after the resolution of any pending or outstanding issues or after the closing of any outstanding non-conformities, whichever is later. The LRIT Coordinator will then destroy all retained records and evidence and send a Certificate of Destruction to the auditee to confirm that this has been done.

## **8. Annual audit schedule and planning**

8.1 In accordance with the terms of the Revised Performance Standards, all DCs and the IDE are subject to audit and review each year. The report of each audit which has been conducted and completed since the previous session of the MSC will be sent to the MSC for consideration at its next session.

8.2 The audit of a DC should be considered as becoming due on the anniversary of the date on which a DC:

- .1 which participated in the prototype testing phase, became part of the production environment of the LRIT system; or
- .2 which has undergone or is undergoing or is to undergo developmental and integration testing, has completed or is to complete the integration testing phase.

8.3 The anniversary date described in paragraph 8.2 is considered to be the date of the first System Status Message (Message Type 11) sent from the DC to the IDE in the production environment following its integration to the production environment of the LRIT system.

8.4 The audit of the IDE should be considered as becoming due on 15 October of each year.

8.5 The LRIT Coordinator, in consultation with the auditee, will determine the date on which the audit will commence.

8.6 Except in exceptional circumstances, the audit will be carried out within three months before or after the anniversary date provided that the period between two consecutive audits does not exceed 15 months. If the audit is carried out within this six-month window, the anniversary date for the auditee will remain unchanged.

8.7 Exceptionally, an auditee, other than the IDE, may request the LRIT Coordinator to conduct its audit on a date other than the anniversary date, or outside of the six-month period described above, provided that the first audit is not held more than 15 months after the anniversary date. In such a case the new audit date should be considered thereafter as being the anniversary date. The LRIT Coordinator will inform the MSC if this situation arises.

8.8 At the beginning of each calendar year, the LRIT Coordinator will prepare a preliminary annual audit schedule based on the anniversary dates of the auditees and make this schedule available to all concerned. In cases where it is not practical or convenient to plan an audit on the exact anniversary date, the LRIT Coordinator may divert from the exact anniversary dates for the audit when preparing the preliminary annual audit schedule. The LRIT Coordinator will also take into account the dates of the MSC meetings when preparing the audit schedule.

## **9. Non-conformities and Corrective Actions**

9.1 Throughout the audit processes, the LRIT Coordinator will look for objective evidence of compliance with the procedures and the standards for the LRIT system, within the scope of the audit criteria. A non-conformity will arise when the instructions or procedures were not followed properly or the requirements of standards were not met by the auditee.

9.2 The LRIT Coordinator will determine and grade all non-conformities as either major non-conformities or non-conformities.

9.3 The DC concerned or the IDE should, in consultation with the LRIT Coordinator, determine and propose appropriate corrective action(s) and the period within which the non-conformities should be dealt with and closed.

9.4 The LRIT Coordinator may require the submission of further evidence or samples with a view to ascertaining that the agreed corrective action(s) have been implemented and the non-conformity has been dealt with satisfactorily.

9.5 In the event that the LRIT Coordinator identifies, at any time, a non-conformity of such a nature that it affects the continuity of the LRIT system itself, the LRIT Coordinator will immediately inform the operator of the IDE, the IMO Secretariat and the Chairman of the *Ad Hoc* LRIT Group, providing them with sufficient detail to enable them to determine what action should be taken to protect the integrity of the LRIT system.

## **10. Pre-audit arrangements**

### *10.1 Pre-Audit Letter*

10.1.1 Twelve weeks before the planned audit date, the LRIT Coordinator will send a notification letter (the Pre-Audit Letter) to the auditee detailing the dates, plans, procedures and methods to be followed for the successful completion of the audit. The Pre-Audit Letter will include a statement of the cost of the audit and expected schedule of payments. The Audit Questionnaire will also be included with the Pre-Audit Letter.

10.1.2 The auditee is requested to acknowledge receipt of the Pre-Audit Letter within 14 days after the date of issue, confirming (or otherwise) the proposed date for the audit, including the dates for the sample data.

10.1.3 Within 14 days after receiving any request from the DC for alternative dates for the audit, the LRIT Coordinator will communicate its final decision to the auditee on the dates for the audit and sample data.

10.1.4 Once the start and end dates of the 30-day sample for the audit have been agreed, the LRIT Coordinator will inform the IDE operator, request the appropriate IDE journals, and download relevant information from the DDP Server.

### *10.2 Submission of audit evidence*

10.2.1 It is the responsibility of the auditee to make available to the LRIT Coordinator the information and the audit evidence that had been requested in the Pre-Audit Letter or otherwise. Auditees should be aware that the LRIT Coordinator may, if it finds it fit and appropriate during the course of the audit, require the submission of further audit evidence as the circumstances may warrant.

10.2.2 The auditee should submit the audit evidence, in particular the Pre-Audit Questionnaire, sample data and the statistics, to the LRIT Coordinator by the Audit Date.

10.2.3 On receipt of the audit evidence, the LRIT Coordinator will check that all necessary materials have been submitted correctly and seek to resolve any immediate queries with the auditee.

### *10.3 Cancellation of the audit*

10.3.1 The LRIT Coordinator may decide to cancel an audit if:

- .1 the auditee specifically asks the LRIT Coordinator to cancel its audit; or
- .2 the auditee does not respond to the Pre-Audit letter and indicate its confirmation for the audit; or
- .3 the auditee fails to provide the LRIT Coordinator with all the requested audit evidence by the Audit Date and in the required format; or
- .4 the auditee fails to provide any requested additional audit evidence in a timely manner; or
- .5 the auditee fails to fulfil its financial obligations to the LRIT Coordinator.

10.3.2 In any of the above situations, the LRIT Coordinator will inform the auditee and provide relevant information to the MSC in relation to the cancellation of the audit.

## **11. Conducting the audit**

11.1 Once the necessary audit evidence has been received, the LRIT Coordinator will begin the audit analysis on the Audit Date. The LRIT Coordinator will normally complete the initial audit analysis within 30 days after the Audit Date.

11.2 The audit of the 30 day sample data will be conducted automatically by specially designed computer systems developed by the LRIT Coordinator. This will ensure a comprehensive, consistent and equitable analysis of the sample data delivering clear, accurate, quantitative results in accordance with the predefined rules and principles of the LRIT system.

11.3 The results from the computer systems will be evaluated together with the other audit evidence provided by the auditee in order to enable the LRIT Coordinator to conduct a full review of the performance of the auditee.

### *11.4 Non-conformities and corrective actions*

11.4.1 When the initial audit analysis has been completed, the LRIT Coordinator will clearly document any non-conformities that have been identified and immediately communicate them to the auditee.

11.4.2 The auditee should, within 14 days, determine and propose to the LRIT Coordinator the corrective action(s) to be taken and the period within which the non-conformities should be dealt with and closed.

11.4.3 At this stage, prior to preparation of the final audit report, the LRIT Coordinator may require the submission of further audit evidence or samples with a view to ascertaining that the agreed corrective action(s) have been implemented and any non-conformities have been resolved and/or that any further non-conformities have not occurred.

## **12 Audit reports**

12.1 After the analysis of all necessary audit evidence, and relevant corrective actions have been completed or agreed, the LRIT Coordinator will prepare the Audit Report.

12.2 The detailed Audit Report is intended to provide a complete, accurate, concise and clear record of the audit and may include the following key elements:

- .1 an Executive Summary;
- .2 the audit objectives;
- .3 the audit scope, particularly identification of the unit or processes audited and the time period covered;
- .4 a list of the auditee representative(s);
- .5 the dates on which the audit activities were conducted;
- .6 the audit criteria;
- .7 a summary of the audit evidence reviewed;
- .8 the audit findings;
- .9 the audit conclusions, including a statement of any uncertainties and/or obstacles encountered that could decrease the reliability of the audit conclusions;
- .10 any comments or remarks by the auditee; and
- .11 any statement of a confidential nature.

12.3 The Audit Report will be sent to the Secretary-General of IMO and the auditee.

12.4 The LRIT Coordinator will also prepare a Summary Audit Report, which will include the following:

- .1 the audit findings, including information on non-conformities and their status;
- .2 the audit conclusions;
- .3 any uncertainties and/or obstacles encountered that could decrease the reliability of the audit conclusions;
- .4 any areas not covered although within the scope of the audit;
- .5 any unresolved diverging opinions between the LRIT Coordinator and the auditee;
- .6 recommendations for improvement, if any; and
- .7 agreed follow-up action plans, if any.

12.5 The Summary Audit Report will be submitted by the LRIT Coordinator to the MSC and sent to the auditee for information.

12.6 The LRIT Coordinator will, prior to submitting the final detailed and summary audit reports to IMO, forward draft copies, no later than one month after the completion of the audit, to the auditee for its perusal and comments, if any.

12.7 Any comments of the auditee should be submitted to the LRIT Coordinator within 15 days after the date on which the draft reports were sent to the auditee. If no comments are received, then the LRIT Coordinator will finalise and submit the two versions of the audit report as described above.

12.8 The LRIT Coordinator and the auditee should endeavour to resolve any difference of opinion in relation to the contents of the detailed and the summary audit reports within five days after the date the auditee has submitted its comments. If the matter cannot be resolved, the comments of the auditee should be included in the summary audit report for consideration of the issue by the MSC.

12.9 The LRIT Coordinator will normally submit the Audit Report to the Secretary-General of IMO no later than one month prior to the opening of the session of the MSC that will consider the report.

12.10 All LRIT Audit Reports will be in the English language only.

12.11 The conclusions of the audit may indicate the need for follow-up action plans for identified non-conformities. Such actions should be decided by the auditee in consultation with the LRIT Coordinator and undertaken within an agreed timeframe. Follow up actions completed after the Audit Report has been submitted to IMO will be reported to the MSC by the LRIT Coordinator at the next appropriate opportunity. The completion and effectiveness of corrective actions will be verified at a subsequent annual audit.

### **13 Destruction of the audit evidence**

13.1 The LRIT Coordinator will take all practical measures to ensure that all the audit evidences are protected from unauthorized access or disclosure as from the time such evidence is received by the LRIT Coordinator.

13.2 The LRIT Coordinator will destroy all the audit evidence related to a particular audit immediately after the MSC has reviewed and accepted its related report, or after the resolution of any pending or outstanding issues or after the closing of any outstanding non-conformities, whichever is later.

### **14 Financial obligations**

14.1 The auditee's financial obligations to the LRIT Coordinator for performing the audit and delivering the relevant audit reports are covered by the LRIT Services Agreement which must be signed by the auditee prior to any audit taking place.

14.2 The LRIT Coordinator will indicate in the Pre-Audit Letter the level of Audit Fee that will be charged by the LRIT Coordinator for performing the audit. The Audit Questionnaire will provide an opportunity for the auditee to indicate whether it wishes to pay the full Audit Fee against a single invoice before the audit takes place, or pay in three stage payments, as follows:

- .1 First Stage Payment – 25 percent on submission of the sample data to the LRIT Coordinator;
- .2 Second Stage Payment – 50 percent on submission by the LRIT Coordinator of the draft audit reports to the auditee; and
- .3 Final Stage Payment – 25 percent on finalization of the reports.

14.3 If the audit is cancelled before the agreed audit date, the LRIT Coordinator will refund to the auditee any amount paid by the auditee. If the audit is cancelled after the agreed audit date, then the LRIT Coordinator will retain the first stage payment or 25 percent of the total audit fee, to cover costs already incurred by the LRIT Coordinator, returning any money that has already been paid over and above this level.

14.4 The LRIT Coordinator will not submit any audit report to IMO unless and until payment of the audit fee has been received in full into the LRIT Coordinator's bank account.

## 15 **Communication of information**

Any information or other communication to be given in relation to the audit should be in writing or other agreed data format and should only be sent by and to the individuals who are identified as formal points of contact in the latest version of the DDP for both the LRIT Coordinator and the auditee.

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