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**LONG RANGE IDENTIFICATION AND TRACKING OF SHIPS (LRIT)**

**PRELIMINARY DRAFT PROCEDURES FOR AUDIT AND REVIEW  
OF DATA CENTRES**

<b>Executive Summary:</b>	This document provides the latest information relating to the LRIT Data Centre review and audit function under ongoing discussion by IMO, and the Director's preliminary plans for performing that function
<b>Action to be taken:</b>	<ol style="list-style-type: none"><li>1. to note the information provided</li><li>2. to instruct the Advisory Committee to agree the Director's final proposals for LRIT Audit and Review Procedures once IMO has completed its consideration of the matter.</li></ol>
<b>Related documents:</b>	ASSEMBLY/20/7.1-7.5; ASSEMBLY/20/8.1/ADD/1; ASSEMBLY/20/INF/9

**1 BACKGROUND**

1.1 The IMO Maritime Safety Committee (MSC), at its Eighty-Fourth Session, noted that Contracting Governments "...needed to reach an agreement on what in fact the review and audit of the performance of the LRIT system would entail so as to enable the LRIT Co-ordinator to perform the expected tasks ..." (MSC 84/WP.5 para 17.9) and invited proposals and suggestions on the issue of the performance review and audit of the LRIT system for consideration at next session (MSC 84/24 para 6.132).

1.2 It is therefore clear that the MSC will not finalise its consideration of the content of the LRIT audit and review process until MSC 85 at the earliest. As a result, IMSO, in its capacity as the LRIT Co-ordinator, can only plan its activities in this regard on the basis of the revised Performance Standard (resolution MSC.263(84) – which for convenience is being made available to the Assembly as ASSEMBLY/20/INF/9) and the provisional Audit and Review Procedures that were under consideration by the LRIT Working Group at MSC 84 (MSC/LRIT/J/15 – provided for convenience at **Annex I**).

1.3 This document therefore provides the latest information relating the LRIT Data Centre audit and review function under ongoing discussion by IMO, and the Director's current plans for performing that function.

## 2 REVISED PERFORMANCE STANDARD - RESOLUTION MSC.263(84)

2.1 MSC 84 revised the Performance Standard, and adopted new resolution MSC.263(84): *Revised Performance Standards and Functional Requirements for the Long-Range Identification and Tracking Of Ships* (the Performance Standard), which, *inter alia*, clarifies the role of the LRIT Co-ordinator in response to the request by IMSO in its submission MSC 84/6/4. The Performance Standard now includes the following provisions relevant to the performance review and audit of LRIT Data Centres:

### "7 LRIT Data Centre

7.1.9 *All Data Centres should ... archive LRIT information from ships which transmit the information to the centre, for at least one year and until such time as the Committee reviews and accepts the annual report of the audit of its performance by the LRIT Coordinator. However, the archived LRIT information should provide a complete record of the activities of the centre between two consecutive annual audits of its performance;*

7.5 *The performance of all LRIT Data Centres should be audited by the LRIT Co-ordinator.*

7.5.1 *All LRIT Data Centres should co-operate and make available to the LRIT Co-ordinator the information required to enable the satisfactory completion of an audit of their performance.*

7.5.2 *All LRIT Data Centres should settle their financial obligations vis-à-vis the LRIT Co-ordinator in a timely manner in accordance with the arrangements they have agreed.*

#### 14 LRIT Co-ordinator

14.4 *The LRIT Coordinator should undertake a review of the performance of the LRIT system taking into account the provisions of regulation V/19-1, the present performance standards, the technical specification for the LRIT system and any related decisions of the Committee and should report its findings to the Committee at least annually. In this respect, the LRIT Coordinator should on an annual basis:*

*.2 audit the performance of all LRIT Data Centres based on archived information and their fee structures; ... and*

*.4 verify that Contracting Governments and Search and rescue services receive only the LRIT information they have requested and are entitled to receive.*

14.5 *In addition to reporting to the Committee on the performance of the LRIT system including any identified non-conformities, the LRIT Coordinator may make recommendations to the Committee, based on an analysis of its findings, with a view to improving the efficiency, effectiveness and security of the LRIT system.*

14.6 *The LRIT Coordinator should, for the purpose of performing the functions specified in paragraphs 14.2.4 and 14.3 to 14.5:*

*.1 be given the required level of access, by the LRIT Data Centres and the International LRIT Data Exchange, to management, and to charging, technical and operational data;*

*.2 collect and analyse samples of LRIT information provided to LRIT Data Users;*

*.3 collect and analyse statistics compiled by LRIT Data Centres and the International LRIT Data Exchange; and ...*

14.7 *The LRIT Coordinator should establish and communicate to the Committee the charges it would be levying in order to recover the expenditure it incurs for providing the services specified in paragraphs 14.2 to 14.5.*

14.8 *The related charges should be paid to the LRIT Coordinator in accordance with agreed arrangements - taking into account the laws of the Contracting Government(s) concerned - as follows:*

*.7 when auditing the performance and fee structures of LRIT Data Centres (paragraph 14.4.2), by the LRIT Data Centre concerned; ..."*

2.2 These provisions, amplified by the lively discussions at MSC 84, make it clear that the MSC does not wish the LRIT Co-ordinator to visit the site of a Data Centre during the audit process, unless the Data Centre

operator specifically requests such a visit. This limitation, which is contrary to informal indications received previously from the Ad Hoc LRIT Group and the MSC, and the Director's consequent previous expectation, has a very significant effect on the resources that will be needed by the Directorate to fulfil the LRIT Co-ordinator function. As a result, the proposed LRIT Budget (AC22/7.4) and the draft LRIT Business Plan (AC22/7.5) show a marked reduction in the resources that are now expected to be required for undertaking the LRIT work, compared with what had been expected and included in earlier versions of the IMSO LRIT Business Plan.

### 3 BASIC ASSUMPTIONS

3.1 The Directorate is basing its plans for review and audit in 2008, 2009 and 2010 on the current IMO decisions noted above, taking into account also:

- .1 draft preliminary LRIT Audit and Review Procedures proposed by the Chairman of the LRIT Working Group during MSC 84 (MSC/LRIT/J/15 - **Annex I**);
- .2 responses received by IMO to its questionnaire on the intentions of Contracting Governments in relation, *inter alia*, to the establishment of their Data Centres (MSC 84/WP.9);
- .3 the following additional assumptions:
  - .1 there will be 20 DCs established and integrated during the last quarter of 2008; with an additional [20] DCs established and integrated during 2009;
  - .2 there will be no IDC before the first quarter of 2010;
  - .3 audits/reviews will begin approximately one year after a Data Centre is integrated into the operational LRIT system;
- .4 integration of DCs will start after 15 August 2008 and the first audits will therefore take place in September 2009; and

- .5 the average audit time for a DC is expected to be of the order of 3 working days, including drafting the report.

#### 4 **DRAFT PROCEDURES FOR THE PLANNING AND AUDITING A DC**

4.1 It is now clear that the LRIT Co-ordinator will have signed an LRIT Service Agreement (LRIT SA) with each Data Centre as it is integrated into the operational LRIT system. This document will provide a legal and practical basis for the ongoing relationship between the two entities, including the operational and financial aspects of the audit and review process. The present state of the Director's thinking in relation to the LRIT SA is outlined in document ASS/20/7.4.

4.2 The Advisory Committee, at its Twentieth Session "*... requested the Director in his next submission to MSC on LRIT matters, to invite the MSC to strengthen the definition of the Co-ordinator's role, so as to clarify the functions of the Co-ordinator and avoid any uncertainty on the part of either IMSO or those who would be subject to audit and review.*" In its document MSC 84/6/4 therefore, IMSO specifically requested clarification and definition of a number of issues, including confirmation as to the extent of what the LRIT Co-ordinator should do on an annual basis. Consequently, IMO has confirmed its previous decision that the LRIT Co-ordinator should audit the performance of *all* LRIT Data Centres *on an annual basis* (resolution MSC.263(84) para 14.4). This means that the LRIT Co-ordinator is required to undertake an audit of each Data Centre every year. However, the Performance Standard does not specify the detailed content of the audit and review process, and that matter remains under consideration for MSC 85.

4.3 In order to control the work effort required to fulfil in an efficient manner all of the audits required during each year, the Director will establish a list of the proposed audit dates for each Data Centre at the beginning of each year, based generally on the integration dates of all the Data Centres to be audited. The date of the first audit for each Data Centre may be adjusted slightly, in discussion with the Data Centre concerned, in order to smooth the Directorate's workload over the 12-month period. Subsequent audits will normally take place at 12 month intervals thereafter.

4.4 The Director's current preliminary plans for the practical audit procedures are summarised in the diagram at **Annex 2**. The Director expects to initiate an audit approximately three (3) months before the Audit Date by sending a letter of intended audit to the Data Centre concerned in accordance with the general provision of paragraph 2.1.1 of Annex 1. This letter will include all the information the Data Centre needs to respond correctly to the Co-ordinator's audit requirements. The Data Centre will be required to accept the Director's proposed audit date within two weeks of receiving the letter of intended audit, or state why it would prefer some other date. Thereafter, the procedure summarised in Annex 2 would be followed.

4.5 However, it should be noted that the audit and review procedures must remain under review in IMSO until the MSC completes its consideration of the issue, possibly at MSC 85. The Advisory Committee, at its twenty-second session (8-10 July 2008), noted the information provided in this document, and agreed to request the Assembly to instruct the Committee to agree the Director's final proposals for LRIT Audit and Review Procedures once IMO has completed its consideration of the matter, which may be expected to happen at MSC 85 in December 2008.

## 5 **ADVISORY COMMITTEE**

At its Twenty-Second Session, the Advisory Committee (AC/22/Report, Section 7.10 refers), noted the information provided by the Director regarding the preliminary draft proposals for LRIT Audit and Review, and agreed to request the Assembly to instruct the Committee to agree the Director's final proposals for LRIT Audit and Review Procedures once IMO has completed its consideration of the matter, which may be expected to happen at MSC 85 in December 2008.

## 6 **ACTION REQUIRED**

The Assembly is invited:

- .1 to note the information provided; and

- .2 to instruct the Advisory Committee to agree the Director's final proposals for LRIT Audit and Review Procedures once IMO has completed its consideration of the matter, which may be expected to happen at MSC 85 in December 2008.
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**PROPOSED LRIT AUDIT AND REVIEW PROCEDURES**  
**Proposal by the Chairman of the IMO MSC 84 Working Group on LRIT**

**1 Background**

1.1 *The Performance standards provides that:*

*"14.4 The LRIT Co-ordinator should undertake a review of the performance of the LRIT system taking into account the provisions of regulation V/19-1, the present Performance standard and any related decisions of the Committee and should report its findings to the Committee at least annually. In this respect, the LRIT Co-ordinator should:*

- .1 review the performance of Application Service Providers (or Communication Service Providers when they act as Application Services Providers) providing services to the International LRIT Data Centre;*
- .2 audit the performance of all LRIT Data Centres based on archived information and their fee structures;*
- .3 audit the performance of the International LRIT Data Exchange and its fee structure, if any; and*
- .4 verify that Contracting Governments and Search and rescue services receive the LRIT information they have requested and are entitled to receive.*

*14.5 The LRIT Co-ordinator should, for the purpose of reviewing the performance of the LRIT system:*

- .1 be given the required level of access, by the LRIT Data Centres and the International LRIT Data Exchange, to management, charging, technical and operational data;*
- .2 collect and analyse samples of LRIT information provided to LRIT Data Users; and*
- .3 collect and analyse statistics compiled by LRIT Data Centres and the International LRIT Data Exchange. "*

**2 Basic Audit Procedure**

2.1 *It is proposed that the basic audit procedure should consist of:*

- .1 Audit letter and pre-audit checklist*

*To be sent to the Data Centre concerned by the LRIT Co-ordinator before the date of the Audit. The letter will notify the Data Centre of the Audit and request completion of the pre-audit checklist. The letter will indicate which*



*files (e.g. Journals, LRIT Information) are to be sent to the LRIT Co-ordinator on DVD/CDs.*

- . 2 LRIT Co-ordinator requests and obtains information from the IDE and DDP server . In order to successfully complete the audit of the system, the LRIT Co-ordinator must obtain soft copies of the Journals from the IDE and the various DDP versions that were active during the term of the audit. This information would be obtained in softcopy format.*
- .3 Pre-audit checklist from the DC is received*

*The LRIT Co-ordinator receives the pre-audit checklist, verifies the responses to the questions and confirms that the correct files have been included on DVD/CDs .*
- .4 Files from the DC are analysed*

*In order to analyse the LRIT Information, Journals, and DDP the LRIT Co-ordinator must develop / have developed an analysis program, which will utilise the LRIT Information and Journals from a DC and will analysis its operation and compliance with the regulation by comparing its actions with the Journals from the IDE and the various versions of the DDP from the DDP server. The analysis program should highlight exceptions/non-compliances to the LRIT Co-ordinator. Due to the amount of data, it may take many several days of for the program to complete the analysis of the information .*
- . 5 The LRIT Co-ordinator reviews the results from the analysis*

*The LRIT Co-ordinator must review the analysis results and prepare the draft Audit Report. A copy of the draft audit report is send to the DC, and the DC is asked to explain any of the exceptions that have been identified .*
- . 6 The LRIT Co-ordinator visits the DC, if required*

*For the very first audit of a DC the LRIT Co-ordinator should visit the DC. For subsequent audits the LRIT Co-ordinator would only visit the DC if there were a substantial number of exceptions identified in the draft audit report. Thus the need for a site visit should be driven by the result of the documentary and data audit results .*
- . 7 The LRIT Co-ordinator finalises the audit report and submits the final report to the Committee and the DC concerned .*
- . 8 The LRIT Co-ordinator compiles the executive summaries of all audits undertaken since the last annual report, adds commentary and comments as required, and submits to the spring session of the Committee.*

**3 Proposed Procedure for Annual Audit and Review**

3.1 *It is proposed that the audit of the performance of all LRIT Data Centres should be carried out annually as described above, however, site visits would only be mandatory for the initial audit. Site visits for subsequent audits would be contingent on the actual results of the audit.*

3.2 *Alternately the Committee may decide to mandate a site visit every [2] years.*

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## **PRELIMINARY DRAFT IMSO PROCEDURES FOR PERFORMANCE AND FEE STRUCTURE AUDIT AND REVIEW IN THE LRIT SYSTEM**

### **1 BACKGROUND**

1.1 The MSC at its 84<sup>th</sup> session adopted Revised Performance Standards and Functional Requirements for the LRIT of Ships (Performance Standards); Resolution MSC.263(84). With regards to the revised section 14 and 7 of the Performance Standards, LRIT Coordinator should audit the performance of all Data Centres (DC) based on archived information and their fee structures on an annual basis. For this reason, DC(s) should archive a complete record of their activities between two consecutive annual audits of their performance carried by the LRIT Coordinator. Moreover LRIT Coordinator should report its findings on the audit of performance of the DC(s) and its fee structure to the MSC at least annually.

1.2 Besides undertaking audits and reviews of the performance of the LRIT system, one of LRIT Coordinator's main contributions to the efficiency, effectiveness and security of the system would be its recommendations to the MSC in the light of the experience and information gained during the performance audits.

1.3 In that respect LRIT Coordinator should be fully supported by the Data Centres by means of giving the required level of access to their management, and to charging, technical and operational data.

1.4 It is also recognised by the MSC that LRIT Coordinator may charge levies to the Data Centres in order to recover the expenditure it incurs for the services it provides.

### **2 PRE-AUDIT ARRANGEMENTS**

2.1 At the beginning of each calendar year, IMSO should prepare an audit plan which includes the name and audit date of each DC living in the LRIT system. The principle for the order of the audits should be; first

integrated first audited. IMSO should also take into account the dates of the MSC meetings when planning the audit dates of the DC(s).

2.2 IMSO should use the contact information of DC(s) provided in the latest version of DDP to communicate its arrangements on the performance and fee structure audit of each DC involved in the process.

2.3 IMSO should make sure that LRIT Service Agreement is signed by the DC concerned before the audit process got started.

2.4 Performance and fee structure audit of a DC starts with the issuing of a Notification Letter by IMSO to the DC concerned 3 months in advance to the planned audit date. Notification Letter indicates general audit procedures and provides detailed information on the content of the data required to be audited such as list of data/files, format of data and how the data should be transmitted to IMSO. Notification Letter is also sent along with a Pre-Audit Questionnaire which would provide IMSO necessary information on the structure and capacity of the DC when it is completed and returned.

2.5 DC should respond to the Notification Letter within 2 weeks after the date of issue. DC may respond with its acknowledgement to the planned audit date or request for rescheduling the date by submitting its reasons for such a request.

2.6 If IMSO receives a request for rescheduling the audit date, then it revisits the Regulation, Performance Standards, Technical Specifications for the LRIT System, its pre-scheduled work programme and decides on the final date of the audit. This audit date should not be changed unless decided by the Coordinator in consultation with the DC concerned.

2.7 Whether a request received or not, IMSO should communicate the decided audit date to the DC within 2 weeks after receiving DC's acknowledgement or request.

### **3 AUDIT PROCESS**

3.1 DC has the responsibility to make the requested archived data package ready at the date of the audit and send it to IMSO for further steps

of the audit process within [1 month] as explained in the Notification Letter. DC should also attach the Pre-Audit Questionnaire to the package as filled and signed.

3.2 If the archived data package and Pre-Audit Questionnaire are not received by IMSO in time, IMSO should communicate to the DC concerned and request for a clarification. Based on the evaluation of the reasons leads the latency, IMSO may give additional time to DC to deliver the package and Pre-Audit Questionnaire. However this additional time shouldn't exceed 2 weeks.

3.3 Meanwhile IMSO must obtain necessary copies of the journal from IDE and versions of DDP from DDP server according to the dates of the requested data from DC before the software audit starts. IMSO, as LRIT Coordinator, should be provided with off-line access to all journals of the IDE by IDE and allowed to have access to the current versions of the DDP by DDP server. Earlier versions of the DDP should be provided by the DDP server upon receipt of a request from IMSO.

3.4 When the archived data package and Pre-Audit Questionnaire are received, IMSO should make sure that all the materials and information are in good quality and as requested. If any kind of material or information which may have a direct impact on the results of the audit is incomplete or not provided, IMSO should inform the DC and request to complete the missing part within [2 weeks]. Other incomplete or missing information with lower priority may be completed before the completion of the audit process.

3.5 If a DC finds a site visit necessary and useful for the improvement of its performance, may invite IMSO at any stage, before or after the performance and fee structure audit to visit its facilities, subject to further confirmation of IMSO.

3.6 After all necessary materials and information fully obtained, auditing of the archived data package should start at a scheduled date by using bespoke audit software developed by IMSO.

#### **4 ARRANGEMENTS FOLLOWING SOFTWARE AUDIT**

4.1 Depending on the volume and the complexity of the data involved, analysis and comparative study might take several days. When the audit software completes its work, an auditor should review and analyse the results if they meet the requirements of the Regulation, Performance Standards, Technical Specifications and any related decisions of the MSC. Based on the outcome of the software audit and its analysis, IMSO should prepare a draft audit report on the performance and fee structure of the DC.

4.2 Draft Report should be prepared to include detailed information on the analysis, results and findings of the performance and fee structure audit of the DC for the period which archived data was provided. Potential non-conformities and their grading (i.e. major non-conformities, non-conformities and findings or observations) should be clearly indicated with their reference points and due dates to rectification. Afterwards, draft report should be sent to the DC within [2 weeks] for its comments, corrective actions or explanations if any non-conformity were raised.

4.3 LRIT Coordinator should [keep all the archived data provided by the DC until such time as the Committee reviews and accepts the report of the audit, in case to use them when solving potential disputes may raise in the future] [return back all the archived data provided by the DC with its draft report upon completion of the audit]

4.4 DC should return to IMSO [within 2 weeks] with its comments and corrective actions to the non-conformities indicated in the draft report if there were any. In case no response received from DC concerned, IMSO proceeds to complete its final report in the light of all available audit results.

4.5 Depending on the grade of the non-conformities raised, Coordinator may decide to request additional archived data packages those archived by the DC concerned after issuance of the draft report, in order to review and track the results of corrective actions taken by DC in consultation with the IMSO.

4.6 If there is still one or more outstanding non-conformity remains which couldn't have been rectified for some reason, final audit report on the performance and fee structure of DC should accommodate those as well.

Those outstanding non-conformities may be revisited and closed at the next annual audit or before depending on the recommendation of the IMSO and decision of the DC concerned. After completion of the final audit report, it should be submitted to the [spring session of the] MSC by IMSO and a copy is sent to the DC concerned for information only.

4.7 During all audit process IMSO and DC concerned should act with responsibility and continuous cooperation in order to fulfil their requirements against the MSC. As a part of their responsibility, since the audit process was started both parties should take into account the due dates for the submission of the final audit report to the MSC by IMSO for further consideration.

## **5 SPECIFIC SERVICES**

5.1 IMSO may cancel to undertake a performance and fee structure audit of a DC or remove the DC concerned from its audit plan when;

- .1 DC does not communicate to the IMSO upon receiving the Notification Letter for acknowledgement of the audit or making a request for rescheduling (paragraph 2.5),
- .2 DC fails to provide all necessary materials and information needed for the audit in time (paragraph 3.1),
- .3 DC fails to provide missing or incomplete materials and information needed for the audit in time (paragraph 3.4)

5.2 IMSO may provide specific services to the DC(s) to undertake their annual performance and fee structure audit if:

- .1 the performance and fee structure audit of a DC is cancelled or DC is removed from the audit plan of the IMSO,
- .2 DC concerned request IMSO to close its outstanding non-conformities raised during the audit at a time sooner than the completion of the final audit report) paragraph 4.6).

## **6 FINANCIAL OBLIGATIONS**

6.1 Financial obligations of a DC are set by the LRIT Service Agreement which should be duly signed by IMSO and DC concerned before the audit process got started. Notification Letter may also reiterate those obligations and provide ground figures on the estimated cost of the audit of the DC.

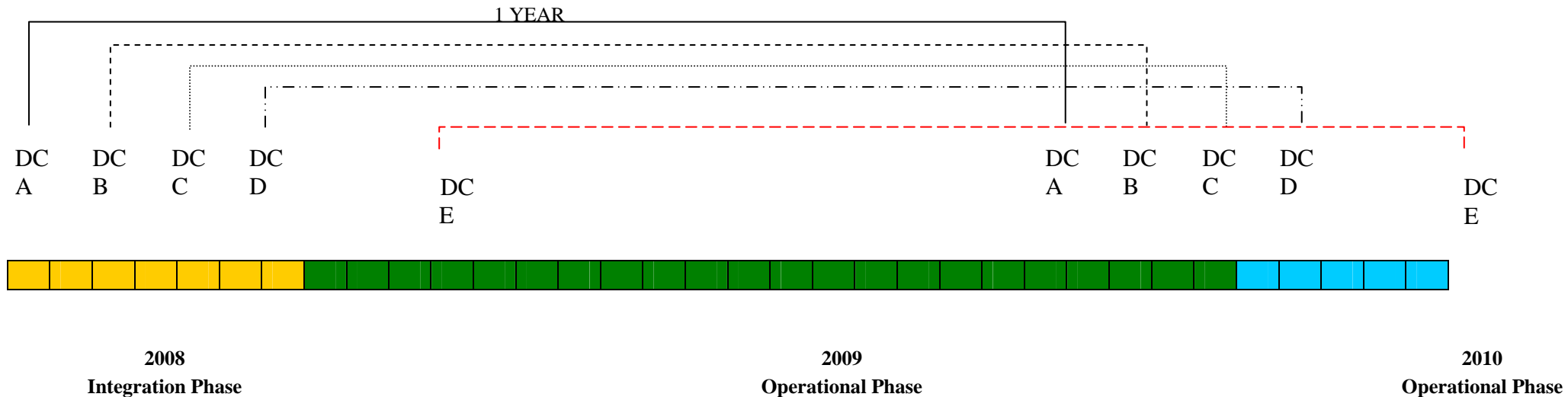
6.2 Payment(s) to the IMSO for the services it provides should be settled at maximum 2 stages. Initial payment should be done before the audit date of the DC and second (final) payment can be settled at anytime [in the same calendar year with the first payment] before the submission of final audit report to the MSC.

6.3 [If any DC decides to cancel the audit itself or removed from the audit calendar due to the reasons explained in this document, DC may receive back the amount settled as initial payment.]

6.4 IMSO may suspend the audit process at anytime if the DC concerned fails to undertake its financial obligations as referred in the LRIT Service Agreement.

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**AUDIT SCHEDULE MODEL BASED ON INTEGRATION DATE**

In this model;

- DCs are audited in an order which based on first integrated first audited.
- Each DC should be audited after completion of at least 1 year since its integration.
- The date of the first audit for each Data Centre may be adjusted slightly, in discussion with the Data Centre concerned, in order to smooth the Directorate's workload over the 12-month period.
- First audit date becomes the origin date for future audits. All the subsequent audits would be conducted for the archived data recorded between 2 consecutive origin dates.
- Due to some reason, one or more DC may join to the system after 31.12.2008. In that case that number of DCs would start to being audited in 2010.
- This situation may bring some complexity to the budget calculation of the Coordinator.
- On the other hand, with this model IMSO might have the opportunity to start receiving revenue in 2009.
- Moreover may disperse the work load over a year.
- Archived data, provided by DCs those were integrated before 31.12.2008 (DC A-B-C-D), would probably contain data only archived after 01.01.2009 when the system is fully operational. In other words, although Performance Standards refers the audit should on an annual basis; those archived data would contain data for less than 1 year.

