

LCT Product Requirements

Version 1.1

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1 INTRODUCTION

1.1 Background

1.2 Document Objective

The objective of this document is to set the specifications for the LRIT Consumption Tool.

1.3 List of Acronyms and abbreviations

Acronyms or abbreviations	Description
EU	European Union
EMSA	European Maritime Safety Agency
LRIT	Long Range Identification and Tracking system
EU LRIT CDC	EU LRIT Cooperative Data Centre
I&B	Invoicing and Billing System
ICT	Information and Communication Technology
MSs	EU Member States, Norway and Iceland
OCTs	Overseas Territories
ODCs	Other LRIT Data Centres
ASP	Application Service Provider
ID	Identification
SAR	Search and Rescue
UWI	User Web Interface
DC	Data Centre

Table 1 – Acronyms and Abbreviations

2 GENERAL DESCRIPTION

2.1 General Capabilities

The functionalities provided by the *LRIT Consumption Tool* can be organized into the following main modules:

1. Internal Administration (Customer/Supplier Management and Price Management) – *Core module 1*
2. Rating and Charging Process – *Core module 2*
3. Consumption Calculation – *Core module 3*
4. Supplier Consumption Verification – *Core module 4*
5. LRIT Consumption Portal for EMSA Financial Operators – *Core module 5*
6. Overall Statistical Reports – *Optional Module 1*
7. Support to Operations – *Optional Modules 3/4*

The Internal Administration constitutes the tasks which are needed to keep the system properly configured from the operational perspective: customer/supplier and price management. The Rating and Charging Process refers to the compilation of the billable transactions based on the EU LRIT CDC Journal and the contracts EMSA has with its customers/suppliers. The Consumption Calculation refers to the generation of customer/supplier consumption reports which are afterwards used by the EMSA financial team as accounting information to support financial operations. The Supplier Consumption Verification makes sure EMSA is not wrongly billed for messages it has received from suppliers. The LRIT Consumption Portal provides an internal interface for the EMSA Financial Operators to perform their operational tasks. The Overall Statistical Reports provides a centralized view on the consumption throughout the years. Finally, the Support to Operations supports the Financial Operators in invoicing customers and verifying invoices received from suppliers.

More details are provided in the next figure.

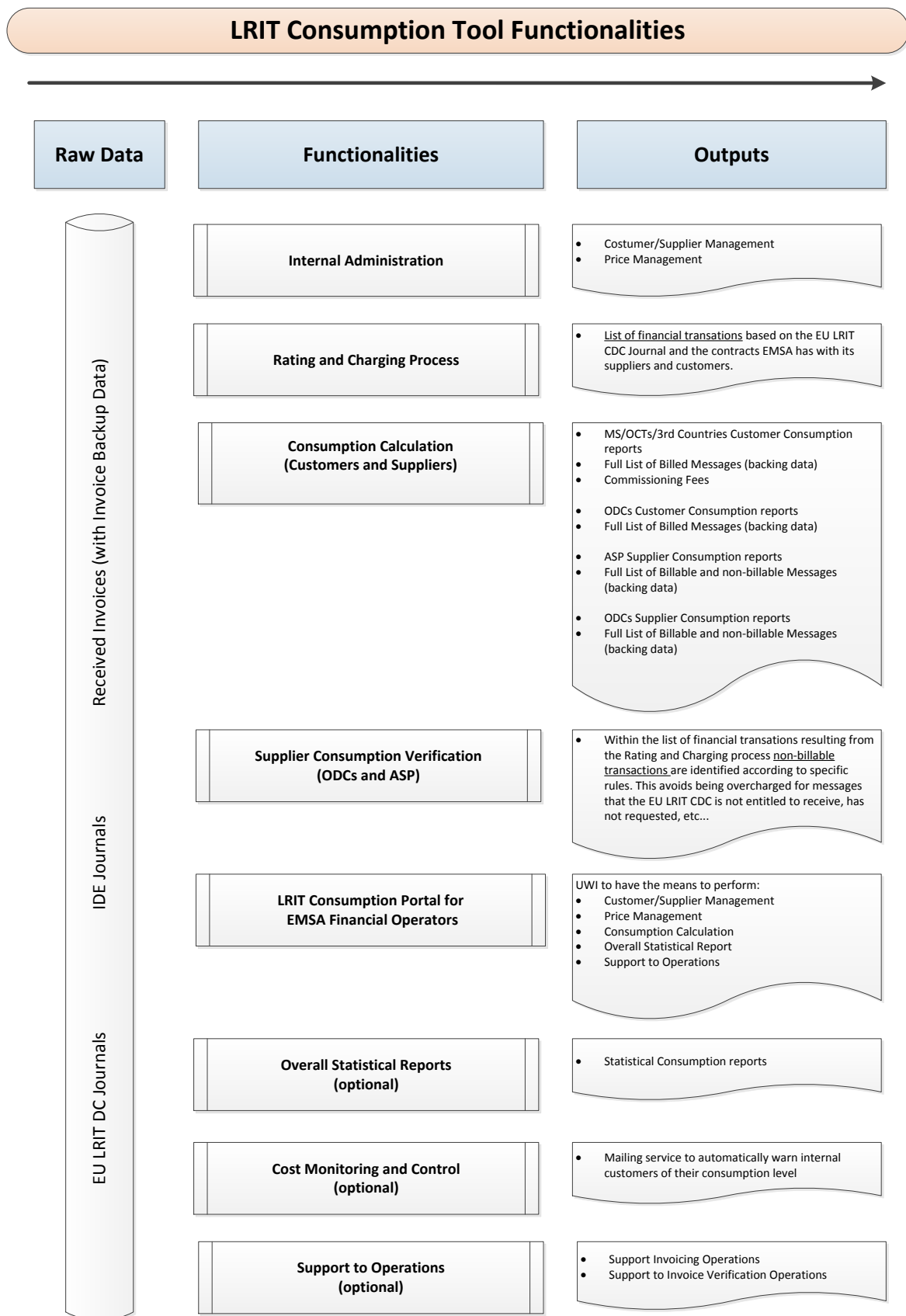


Figure 1 – Functionalities of the I&B System

A detail list of requirements for these functionalities is available in §3.

2.2 Operational Environment

The system being specified in this document fits within the following environment (yearly values):

- 22M transactions of billable items
- 87 Customers / Suppliers
- 100 Customer Consumption Reports
- 65 Supplier Consumption Verifications
- ~20 Billing Rules

In addition, this system is used by two Financial Operators with no IT background.

The criticality of the operational tasks is fairly low. Billing cycles (when the Customer Consumptions are calculated) are run on a quarterly basis and the supplier consumption verification is performed 15-30 days after the reception of the invoice at EMSA.

The outcomes produced by the LRIT Consumption Tool during the Billing Cycle and the Supplier Consumption Verification are inputs to the LRIT Financial Team to execute LRIT related financial transactions via the EMSA Accounting System. In fact, the LRIT Consumption Tool is not be used by the Financial Operators to manage Invoicing and Billing operations but rather to extract accounting information aimed at supporting the Authorizing Officer in establishing the amounts receivable as well as providing technical acceptance to LRIT payments.

3 SPECIFIC REQUIREMENTS

3.1 Functional Requirements

Internal Administration – Customer / Supplier Management

REQ-FNC-1. There SHALL be five customer categories as follows:

- a. Group 1: EU Member States, Norway and Iceland (MSs);
- b. Group 2: Overseas Territories (OCTs);
- c. Group 3: Third Countries (3rdC.);
- d. Other LRIT Data Centres (ODCs);
- e. EMSA.

REQ-FNC-2. There SHALL be three provider categories as follows:

- a. Application Service Provider (ASP);
- b. Other LRIT Data Centres (ODCs);
- c. EMSA.

REQ-FNC-3. Customers and Providers SHALL be identified by their LRIT ID.

REQ-FNC-4. The compilation of the list of Customers and Providers SHALL be as automated as possible based on the DDP file. What cannot be automated SHALL be manually configurable in the system.

REQ-FNC-5. Any automated or manual change to the list of Customers and Providers SHALL be logged.

REQ-FNC-6. Other LRIT Data Centres (ODCs) and EMSA SHALL be both customers and suppliers.

REQ-FNC-7. Application Service Providers (ASP) SHALL be Suppliers.

REQ-FNC-8. Groups 1, 2 and 3 SHALL be Customers.

REQ-FNC-9. The system SHOULD allow the Financial Operator to edit a free comment text area customizable per customer/supplier.

Internal Administration – Price Management

REQ-FNC-10. For each Supplier an EMSA buying price SHALL be defined for each billable item type specified in that supplier's contract with EMSA.

REQ-FNC-11. For each Customer an EMSA selling price SHALL be associated for each billable item type specified in that customer's contract with EMSA.

REQ-FNC-12. Prices SHOULD be associated to a timeline, i.e., before t_1 price is X, from t_1 to t_2 price is Y from t_2 onwards price is Z and so on.

REQ-FNC-13. The system SHOULD be able to identify which package of prices is active at a particular timestamp.

REQ-FNC-14. Prices SHALL be associated to a currency.

REQ-FNC-15. The Financial Operator SHALL be able to configure the price list.

REQ-FNC-16. The system SHALL allow exporting the price grid to a portable format, like CSV.

Rating and Charging Process

REQ-FNC-17. The system SHALL follow the specific billing rules defined in a configuration file.

REQ-FNC-18. Billing Rules are expected to vary over time. The system MAY create a package of rules every time there is a change in the billing rules. Only one package should be valid over a period of time.

REQ-FNC-19. The system MAY be able to identify which package of rules is active at particular timestamp.

REQ-FNC-20. The system SHOULD be able to go through the EU LRIT CDC journals and identify **billable transactions**: Supplier ID, Customer ID and billable item (a specific type of message message).

NOTE 1: one EU LRIT CDC journal entry can generate more than one billable transaction.

NOTE 2: XML interface consumption is also included in the scope of this requirement

NOTE 3: non-billable transactions resulting from supplier consumption verification are expected to be listed as billable transactions at this stage and only later classified as non-billable transactions after the verification process is performed

REQ-FNC-21. For each identified billable transaction the system SHOULD determine its **billable item code** depending on the Supplier LRIT ID, the Customer LRIT ID, the message type exchanged and the time (timestamp 1).

NOTE: the need for timestamp 1 is directly related to REQ-FNC-19.

REQ-FNC-22. For each identified billable item code, a **price** SHOULD be calculated depending on the Supplier LRIT ID, the Customer LRIT ID, the Billable item code and the time (timestamp 1).

NOTE: the need for timestamp 1 is directly related to REQ-FNC-12.

REQ-FNC-23. Ultimately, each calculated **billable transaction** SHALL be stored with at least the following information:

- a. Contract type
- b. billable item code
- c. Customer LRIT ID

- d. Provider LRIT ID
- e. Type of message type - *optional*
- f. Date (as "DD/MM/YYYY H24:MIN:SS")
- g. LRIT Message ID
- h. Price
- i. Currency
- j. Billable Flag (refer to Supplier Consumption Verification requirements)

REQ-FNC-24. In addition, each calculated **billable transaction** SHOULD also be stored with the following information:

- a. LRIT Message Type ("Periodic Report", "Polled Report", "SAR Report", "Position Request", "SAR Position Request", "SAR SURPIC Request" and "Receipt Message")
- b. LRIT Reference ID
- c. CG Requestor (as 1###)
- d. CG Provider (as 1###)
- e. DC Provider (as 3###)
- f. IMO Number
- g. LRIT Access Type ("Restart/Reset", "One time poll", "15min periodic rate", "30min periodic rate", "1h periodic rate", "3h periodic rate", "6h periodic rate", "Archived LRIT Information Request", "stop / don't start sending position reports", "Most recent position report", "12h periodic rate" and "24h periodic rate")

- h. LRIT Request Type ("Restart/Reset", "Coastal", "Flag", "Port with distance trigger", "Port with time trigger" and "SAR")
- i. LRIT Response Type ("Coastal", "Flag", "Port" and "SAR")
- j. Receipt Code ("0- Not entitled to data", "5- Ship not responding", "6- Ship not available")
- k. User Login (refer to EU LRIT CDC UWI interface login)

NOTE: *it is understood that depending on the billable transaction not all items will be filled, e.g., "Receipt Code" will only be filled in case of Message Type 7.*

REQ-FNC-25. Billable transactions SHALL be stored in a dedicated journal (to be called *Billing Journal*) separated from the *EU LRIT CDC Journal*.

REQ-FNC-26. The system SHALL allow to roll-back the *Billing Journal* generation, meaning the system SHALL allow to clear/delete a specific time period of the *Billing Journal* and restart the *Rating and Charging* process to regenerate the *Billing Journal* based on the *EU LRIT CDC Journal*.

NOTE 1: *this feature is requested to cope with errors which might occur during the Rating and Charging process*

NOTE 2: *this feature also applies to an eventual Statistical Billing Journal (refer to REQ-PER-3)*

REQ-FNC-27. There SHALL be a configurable exclusion list composed of ODCs for which Non-EU Reports SHALL not be billed to Group 1, 2 and 3 customers.

NOTE: *this is requested to be able to cope with data centres which provide data for free, such as the US DC.*

Consumption Calculation – General

REQ-FNC-28. The system SHALL generate consumption reports for any category of customers (except EMSA) based on a Customer ID, a start date and an end date.

REQ-FNC-29. The system SHALL generate consumption reports for all customers (except EMSA) based on a Customer Category, a start date and an end date.

REQ-FNC-30. The system SHALL generate consumption reports for any category of suppliers (except EMSA) based on a Provider ID, a start date and an end date.

REQ-FNC-31. The system SHALL generate consumption reports for all suppliers (except EMSA) based on a Supplier Category, a start date and an end date.

REQ-FNC-32. The system SHALL generate consumption reports for all suppliers and customers (except EMSA) based on a start date and an end date.

REQ-FNC-33. The system SHALL allow configuring the list of consumption reports to be generated before launching its generation.

REQ-FNC-34. The system SHALL allow the setting up of scheduled/recurrent pre-configured consumption report generation tasks.

REQ-FNC-35. The system SHALL keep a status of the recently generated, on-going and planned consumption report generation tasks, which SHALL include one line per consumption report as follows:

- a. Contract type ("ASP Contract", "Agreement" and "Conditions of Use")
- b. Customer LRIT ID ("3302" for EMSA, "3###" for ODCs and "1###" for Group1,2 and 3)
- c. Provider LRIT ID ("3302" for EMSA, "3###" for ODCs and "4009" for ASP)
- d. Start date
- e. End date

- f. Total consumption value of the report
- g. Currency
- h. Status of the generation (PLANNED for "DD/MM/YYYY H24:MIN", ON-GOING since "DD/MM/YYYY H24:MIN:SS", FAILED at "DD/MM/YYYY H24:MIN", COMPLETED on "DD/MM/YYYY H24:MIN")

REQ-FNC-36. The system SHALL allow stopping an on-going consumption report generation task.

REQ-FNC-37. The system SHALL allow cancelling a planned consumption report generation task.

REQ-FNC-38. The system SHALL keep an history log of the consumption report generation tasks, which SHALL include one line per consumption report generated as follows:

- a. Date of the generation of the Consumption Report
- b. Contract type ("ASP Contract", "Agreement" and "Conditions of Use")
- c. Customer LRIT ID ("3302" for EMSA, "3###" for ODCs and "1###" for Group1,2 and 3)
- d. Provider LRIT ID ("3302" for EMSA, "3###" for ODCs and "4009" for ASP)
- e. Start date
- f. End date
- g. Total consumption value of the report
- h. Currency
- i. Result of the generation (COMPLETED, FAILED, CANCELLED)

REQ-FNC-39. The system SHOULD allow exporting the history log of the consumption report generation into a portable format, like a CSV file.

REQ-FNC-40. The system SHALL name the consumption reports generated as follows:
[Supplier/Customer]_Report_[SupplierID/CustomerID]_[startdate]_[enddate], e.g., *Customer_Report_3023_2013-01-01_2013-02-01*

REQ-FNC-41. The system SHALL store each individual consumption report generated in a compressed format.

REQ-FNC-42. The system SHALL store each individual consumption report generated for a period of at least 2 months.

REQ-FNC-43. The system MAY store each individual consumption report generated for a period of 5 years.

REQ-FNC-44. The system SHALL send to a configurable email the generated consumption reports as standalone portable packages.

REQ-FNC-45. The system SHALL allow re-sending already generated consumption reports to a configurable email.

REQ-FNC-46. The system MAY allow exporting already generated consumption reports to the operator's desktop.

REQ-FNC-47. The consumption reports SHALL consist of two items:

- a. consumption summary
- b. backing data.

Consumption Calculation – Consumption Summary

REQ-FNC-48. Consumption Reports SHALL include a "Consumption Summary" summarizing the consumption per billable item code.

REQ-FNC-49. Customer Consumption Summaries SHALL clearly identify the Customer ID.

REQ-FNC-50. Supplier Consumption Summaries SHALL clearly identify the Supplier ID.

REQ-FNC-51. Consumption Summaries SHALL clearly identify the time period the report refers to.

REQ-FNC-52. Consumption Summaries SHALL clearly identify and separate the different billable items being charged.

REQ-FNC-53. Consumption Summaries SHALL clearly identify the unit price and total cost per each type of billable item being charged

REQ-FNC-54. Consumption Summaries SHALL clearly identify the total consumption in the corresponding currency.

REQ-FNC-55. Consumption Summaries MAY clearly identify the total consumption since the beginning of the calendar year.

REQ-FNC-56. Consumption Summaries SHALL be easily printable in standard desktops.

REQ-FNC-57. Consumption Summaries MAY be stored in HTML format.

REQ-FNC-58. There SHALL be a specific Customer Consumption Summary template for Group 1 Customer Category.

NOTE: *the layout of the consumption summary needs to be agreed during the design phase*

REQ-FNC-59. There SHALL be a specific Customer Consumption Summary template for Group 2/3 Customer Categories.

NOTE: *the layout of the consumption summary needs to be agreed during the design phase*

REQ-FNC-60. There SHALL be a specific Customer Consumption Summary template for Other Data Centres Customer Category.

NOTE: *the layout of the consumption summary needs to be agreed during the design phase*

REQ-FNC-61. There SHALL be a specific Supplier Consumption Summary template for the ASP Supplier Category.

NOTE: *the layout of the consumption summary needs to be agreed during the design phase*

REQ-FNC-62. There SHALL be a specific Supplier Consumption Summary template for Other Data Centres Supplier Category.

NOTE: *the layout of the consumption summary needs to be agreed during the design phase*

REQ-FNC-63. The Customer Consumption Summary template of Group 2/3 SHALL also include the billable transactions to be credited back to the customer.

REQ-FNC-64. The system MAY display in the Supplier Consumption Summaries (ASP and ODCs) the acceptable error rate based on a customizable percentage

NOTE: *the current error rate is 3% of the total amount of the invoice.*

Ex: in a supplier invoice of €100 MAY display $100 \times 3\% = €103$.

Consumption Calculation – Backing Data

REQ-FNC-65. Consumption Reports SHALL include “backing data” consisting of the full list of items billed under a specific Consumption Report.

REQ-FNC-66. An item of a Consumption Report backing data list SHALL be clearly traceable to an entry of the corresponding Consumption Summary.

REQ-FNC-67. The Consumption Reports backing data SHALL include the information of REQ-FNC-23 and REQ-FNC-24 for each item in the list.

REQ-FNC-68. The Consumption Reports backing data SHALL be easily accessed using standard desktop tools, like MS Excel.

REQ-FNC-69. The Consumption Reports backing data SHALL be stored in a portable format, like "Comma Separated Value" CSV, as illustrated in ANNEX 1: Consumption Report Backing Data.

Supplier Consumption Verification

REQ-FNC-70. Supplier Consumption Verification SHALL apply to ASP Supplier Consumption and ...

REQ-FNC-71. ...to ODCs Supplier Consumption

REQ-FNC-72. The Non-Billable transactions SHALL be included but separately identified in the *Consumption Summary* and in the *Backing Data* of the Supplier Consumption Reports.

NOTE: the *Billable Flag* can be used to separate billable from non-billable transactions in the *backing data* but separate entries must be used in the case of the *Supplier Consumption Summaries*

REQ-FNC-73. The system SHALL be able to identify within the *Billing Journal* (refer to REQ-FNC-25) which ASP Supplier transactions are actually billable and which are in fact non-billable according to the rules defined in ANNEX 7: ASP Non-Billable Transactions. The Billable Flag parameter of the *Billing Journal* SHALL identify the non-billable transaction type.

REQ-FNC-74. The system SHALL be able to identify within the *Billing Journal* (refer to REQ-FNC-25) which ODCs Supplier transactions are actually billable and which are in fact non-billable according to the rules defined in ANNEX 8: ODCs Non-Billable Transactions. The Billable Flag parameter of the *Billing Journal* SHALL identify the non-billable transaction type.

Overall Statistical Reports – Optional Module 1

REQ-FNC-75. The system SHALL generate or display *statistical consumption reports* which are different than the *consumption reports*.

NOTE: *statistical consumption reports* are used to support LRIT financial operations and are not sent to the customers/suppliers nor are they

used as Accounting Information as laid out in Article 43 §1-e of the EMSA Financial Regulation.

REQ-FNC-76. *Statistical consumption reports* MAY consist of a single page

REQ-FNC-77. *Statistical consumption reports* MAY simply be visualized without the need to be printed.

REQ-FNC-78. *Statistical consumption reports* SHALL be exportable to a portable format, like CSV.

REQ-FNC-79. The system SHALL generate or display a statistical ODCs **customer** consumption report which SHALL include the total consumption per customer per month. Refer to ANNEX 2: Statistical ODCs consumption report - per customer per month.

REQ-FNC-80. The system SHOULD generate or display a statistical ODCs **customer** consumption report which SHOULD include the total consumption per billable item per month. Refer to ANNEX 3: Statistical ODCs consumption report - per Billable Item per month.

REQ-FNC-81. The system MAY generate or display a statistical ODCs **supplier** consumption report which MAY include the total consumption per customer per month. Refer to ANNEX 2: Statistical ODCs consumption report - per customer per month.

REQ-FNC-82. The system MAY generate or display a statistical ODCs **supplier** consumption report which MAY include the total consumption per billable item per month. Refer to ANNEX 3: Statistical ODCs consumption report - per Billable Item per month.

REQ-FNC-83. The system SHALL generate or display a statistical Group1, 2 and 3 customer consumption report which SHALL include the total consumption per customer per month. Refer to ANNEX 4: Statistical Group1, 2 and 3 Customer consumption report - per customer per MONTH

REQ-FNC-84. The system SHOULD generate or display a statistical ASP supplier consumption report which SHOULD include the total consumption per billable item per month. Refer to ANNEX 5: Statistical ASP Supplier consumption report - per customer per MONTH.

REQ-FNC-85. The system MAY generate or display a statistical EMSA customer (ASP and ODCs purchases) consumption report which SHOULD include the total consumption per billable item per month.

REQ-FNC-86. The system SHALL generate or display a statistical Group 2/3 supplier credit report which SHALL include the total amount to be credited back at the end of the year per group 2/3 customers per month. Refer to ANNEX 6: Statistical Group 2/3 supplier Commission report - per customer per MONTH.

Cost Monitoring and Control – Optional Module 2

REQ-FNC-87. The system SHOULD update on a daily basis the current yearly customers/suppliers consumption for all customers/suppliers.

REQ-FNC-88. The system MAY automatically warn Group 1, 2 and 3 customers by email when the yearly consumption has reached a configurable threshold in euros. The configuration is done internally by EMSA upon request by the customers.

REQ-FNC-89. The system MAY automatically report to Group 1, 2 and 3 customers by email their current yearly and last month consumption, on a monthly basis.

REQ-FNC-90. There MAY be the possibility to activate and deactivate the functionalities defined in REQ-FNC-88 and REQ-FNC-89.

Support to Operations – Invoicing – Optional Module 3

REQ-FNC-91. The system MAY store/track per customer the *next_invoicing_day*

NOTE: *this supports the Financial Operator in understanding the period already invoiced per customer. Ex: if January's consumption report was*

generated for customer A the next_invoicing_day of that customer would be 01/02.

REQ-FNC-92. The system MAY automatically choose the *next_invoicing_day* as *startdate* when generating a Customer Consumption Report if the *startdate* was not specified by the Financial Operator when configuring the Customer Consumption Report generation.

NOTE: in this situation the Financial Operator would be generating the outstanding consumption still not invoiced to the customer

REQ-FNC-93. The system MAY provide a snapshot of the outstanding consumption of each of its customers.

NOTE: outstanding consumption is the total consumption of a customer between the next_invoicing_day and the first_day_of_current_month.

REQ-FNC-94. The system MAY automatically decide to not perform a configured/scheduled Customer Consumption Report based on a consumption threshold configurable per customer by the Financial Operator.

NOTE 1: Ex: A given pre-scheduled Customer Consumption Report generation is only performed if the consumption during the period is above the threshold of €1000. If the consumption is below that value, the Customer Consumption Report is not generated. In any case, this decision is logged.

NOTE 2: if the Customer Consumption Report is not generated the next_invoicing_day is not updated either.

Support to Operations – Supplier Invoice Verification – Optional Module 4

REQ-FNC-95. The system MAY allow configuring an invoice verification task as follows:

- a. SupplierID
- b. startdate
- c. enddate

- d. IDE Journal file
- e. Supplier Journal file

NOTE: this invoice verification task only needs to be executed by the Financial Operator in the case of disputes, i.e., if the discrepancy between the Supplier Consumption Report and the Supplier Invoice received by EMSA differs of more than the tolerated error rate percentage (currently at 3%)

REQ-FNC-96. In the context of the invoice verification task, the system MAY ingest IDE Journals

NOTE: these journals are downloadable from the IDE Administrative Interface

REQ-FNC-97. In the context of the invoice verification task, the system MAY ingest Supplier Journals

NOTE: Supplier Journals are the "backing data" provided by the suppliers to support their "Consumption Summary". At least a date, a MessageID, a ReferenceID and a ShipIMONumber MAY be ingested.

REQ-FNC-98. The system MAY be able to run invoice verification tasks which result MAY consist of four lists:

- a. Messages missing in the Supplier Journal w.r.t the IDE Journal
- b. Messages missing in the IDE Journal w.r.t the Supplier Journal
- c. Messages missing in the EU CDC Billing Journal w.r.t the IDE Journal
- d. Messages missing in the IDE Journal w.r.t the EU CDC Billing Journal

REQ-FNC-99. The system MAY allow exporting the four lists resulting from the invoice verification tasks to a portable format, like CSV.

3.2 System Interface Requirements

LRIT Consumption Portal for EMSA Financial Operators

- REQ-ICD-1. The LRIT Consumption Portal SHALL be included in the existing EU LRIT CDC as separate tab(s).
- REQ-ICD-2. The LRIT Consumption Portal SHALL provide graphical means to perform the *Customer/Supplier management* functionalities defined in the functional requirements.
- REQ-ICD-3. The LRIT Consumption Portal SHALL provide graphical means to perform the *price management* functionalities defined in the functional requirements.
- REQ-ICD-4. The LRIT Consumption Portal SHALL provide graphical means to perform the *Consumption Calculation* functionalities (configuration, scheduling, generation status, etc.) defined in the functional requirements.
- REQ-ICD-5. The LRIT Consumption Portal MAY provide graphical means to perform the *Overall Statistical Report* functionalities defined in the functional requirements.
- REQ-ICD-6. The LRIT Consumption Portal MAY provide graphical means to perform the *Cost Monitoring and Control* functionalities defined in the functional requirements.
- REQ-ICD-7. The LRIT Consumption Portal MAY provide graphical means to perform the *Support to Operations – Invoicing* functionalities defined in the functional requirements.
- REQ-ICD-8. The LRIT Consumption Portal MAY provide graphical means to perform the *Support to Operations – Supplier Invoice Verification* functionalities defined in the functional requirements.

3.3 Performance Requirements

REQ-PER-1. The activity of the LRIT Consumption Tool system shall not impact the critical LRIT CDC functions up to the point of breaching the Quality of Service.

REQ-PER-2. The EU LRIT CDC Journal SHOULD be analysed on a daily basis to produce the *Billing Journal* (refer to REQ-FNC-25).

REQ-PER-3. Daily (or monthly) statistics of the *Billing Journal* (refer to REQ-FNC-25) SHOULD be made to increase performance when working with Overall Statistical Reports. For instance to create a *statistical billing journal* based on the *Billing Journal* with daily consumption summary data grouped per customer/supplier ID, per month/day, per lowest granularity item, per billable item code,...

NOTE: *performance can also be increased considering database aspects such as storing data in separate partitions for each day.*

3.4 Computer Resource Requirements

REQ-RSC-1. The system's resource requirements SHALL be identified at early stages and updated during the testing phase for the application and database servers

- a. Number of CPUs
- b. Disk space
- c. Memory

3.5 Quality Requirements

REQ-QUA-1. The system SHALL be produced following the D1.3 Project Delivery Guidelines, refer to **Error! Reference source not found..**

REQ-QUA-2. The system SHALL be produced following recognized software engineering standards and best practices.

REQ-QUA-3. The system SHALL be produced following recognized coding standards.

REQ-QUA-4. The testing team SHALL be separate from the development team.

3.6 Design Requirements and Constraints

REQ-DES-1. The system SHALL be integrated into the existing EU LRIT CDC system.

REQ-DES-2. The integration SHOULD be done preferably at all levels: application server, database server, database instance, middleware, software modules, re-usage of UWI, etc.

NOTE: *this is to be discussed during the design phase*

REQ-DES-3. The degree of integration SHALL consider capacity, performance and testing issues, bearing in mind that the critical LRIT CDC functions SHALL not be affected by the activity of the LRIT Consumption Tool up to the point of breaching the Quality of Service.

REQ-DES-4. The Billing rules SHALL be implemented in the system in a way that future evolutions to the rules can be easily inserted into the system (promote parameterization and avoid hardcoding as much as possible)

REQ-DES-5. No past data SHALL be imported to the new LRIT Consumption Tool.

3.7 Software Operations Requirements

REQ-OPS-1. The usage of the system SHALL be automated and simple enough to be performed as an administrative task.

3.8 Software Maintenance Requirements

REQ-MAI-1. The system SHALL regularly and automatically archive/delete data/logs generated in the application server in order to have a sustainable tool in terms of disk space.

ANNEX 1: CONSUMPTION REPORT BACKING DATA

Invoice Section	Date	Message Type	Message Id	Reference Id	CG Requester	CG Provider	DC Provider	IMO Number	Access Type	Request Type	Response Type	User Login	Amount
User's Fleet-Mandatory Information-Position Reports	01/01/2013 00:04	1	1.0322E+22		1032	1032	3302	9334727	none	none	Flag	none	0.13
User's Fleet-Mandatory Information-Position Reports	01/01/2013 00:06	1	1.0322E+22		1032	1032	3302	9512020	none	none	Flag	none	0.13
User's Fleet-Mandatory Information-Position Reports	01/01/2013 00:16	1	1.0322E+22		1032	1032	3302	9082881	none	none	Flag	none	0.13
User's Fleet-Mandatory Information-Position Reports	01/01/2013 00:26	1	1.0322E+22		1032	1032	3302	9384514	none	none	Flag	none	0.13
User's Fleet-Mandatory Information-Position Reports	01/01/2013 00:26	1	1.0322E+22		1032	1032	3302	9465320	none	none	Flag	none	0.13
User's Fleet-Mandatory Information-Position Reports	01/01/2013 00:28	1	1.0322E+22		1032	1032	3302	7423718	none	none	Flag	none	0.13
User's Fleet-Mandatory Information-Position Reports	01/01/2013 00:40	1	1.0322E+22		1032	1032	3302	9102966	none	none	Flag	none	0.13
User's Fleet-Mandatory Information-Position Reports	01/01/2013 00:48	1	1.0322E+22		1032	1032	3302	8715235	none	none	Flag	none	0.13
User's Fleet-Mandatory Information-Position Reports	01/01/2013 00:48	1	1.0322E+22		1032	1032	3302	9519638	none	none	Flag	none	0.13
User's Fleet-Mandatory Information-Position Reports	01/01/2013 00:48	1	1.0322E+22		1032	1032	3302	9290608	none	none	Flag	none	0.13
User's Fleet-Mandatory Information-Position Reports	01/01/2013 01:04	1	1.0322E+22		1032	1032	3302	9412234	none	none	Flag	none	0.13
User's Fleet-Mandatory Information-Position Reports	01/01/2013 01:08	1	1.0322E+22		1032	1032	3302	8715247	none	none	Flag	none	0.13
User's Fleet-Mandatory Information-Position Reports	01/01/2013 01:08	1	1.0322E+22		1032	1032	3302	9339416	none	none	Flag	none	0.13
User's Fleet-Mandatory Information-Position Reports	01/01/2013 01:14	1	1.0322E+22		1032	1032	3302	9159458	none	none	Flag	none	0.13
User's Fleet-Mandatory Information-Position Reports	01/01/2013 01:14	1	1.0322E+22		1032	1032	3302	9585546	none	none	Flag	none	0.13
User's Fleet-Mandatory Information-Position Reports	01/01/2013 01:34	1	1.0322E+22		1032	1032	3302	9585558	none	none	Flag	none	0.13

ANNEX 2: STATISTICAL ODCS CONSUMPTION REPORT - PER CUSTOMER PER MONTH

Values where blurred due to confidentiality purposes

Sum of TOTAL_AMOUNT	Column Labels												
Row Labels	2012-01	2012-02	2012-03	2012-04	2012-05	2012-06	2012-07	2012-08	2012-09	2012-10	2012-11	2012-12	Grand Total
Algeria LRIT National Data Centre		€0.19											€0.19
Antigua and Barbuda National LRIT Data Centre	€574.50	€171.45	€282.75	€502.55	€275.82	€286.79	€264.40	€270.00	€285.89	€440.75	€266.77	€382.47	€4,830.11
Australia National LRIT Data Centre	€1.33		€5.24	€1.52	€5.71	€19.30	€26.00	€27.00	€31.50	€32.11	€1.33	€1.33	€146.94
Bahamas National LRIT Data Centre	€218.50	€187.84	€173.66	€177.33	€125.22	€396.77	€420.77	€512.24	€444.89	€263.91	€223.06	€188.79	€3,452.11
Barbados National LRIT Data Centre	€100.01	€104.88	€23.03	€71.05	€83.13	€64.21	€40.00	€58.52	€67.81	€31.07	€53.20	€67.70	€513.33
Belize National LRIT Data Centre	€14.77	€20.84	€15.96	€4.70	€5.65	€15.00	€10.00	€13.20	€11.80	€11.00	€15.00	€11.09	€176.11
Bermuda	€24.00	€20.05	€21.54	€35.01	€20.71	€69.60	€78.20	€67.77	€51.60	€12.00	€30.00	€14.22	€721.07
Canada National LRIT Data Centre	€7.41	€21.10	€5.09	€3.81	€0.95	€67.79	€77.40	€104.60	€85.20	€61.56	€26.21	€12.30	€445.59
Cayman Islands (United Kingdom) National LRIT Data Centre	€11.16	€9.17	€12.16	€9.44	€29.73	€27.60	€34.30	€61.00	€12.20	€11.09	€14.80	€7.89	€250.44
China National LRIT Data Centre	€33.82	€17.67	€11.00	€35.54	€60.23	€57.80	€46.40	€125.60	€85.90	€60.04	€44.45	€74.48	€681.89
Comoros					€3.99	€7.67		€7.09	€9.75	€3.94	€0.27		€70.29
Dominica National LRIT Data Centre	€38.41	€34.58	€36.10	€21.68	€47.51	€31.00	€93.00	€29.80	€15.40	€20.52	€33.06	€10.64	€367.11
Egypt	€3.04	€12.70											€15.77
Faroe Islands	€95.76	€121.41	€100.69	€60.50	€113.81	€208.00	€775.70	€171.80	€206.00	€138.13	€170.65	€175.71	€3,722.64
India	€1.71			€1.71	€0.38	€0.20			€0.28	€11.97			€15.11
Isle of Man (United Kingdom) National LRIT Data Centre	€68.79	€63.00	€89.49	€68.10	€110.30	€129.59	€125.40	€139.60	€30.80	€74.00	€43.18	€46.17	€1,041.71
Jamaica National LRIT Data Centre					€5.32	€2.20		€7.00					€14.52
Japan National LRIT Data Centre				€1.71	€5.32	€2.20		€5.13		€7.00	€0.38	€3.00	€17.01
Kuwait National LRIT Data Centre					€2.40								€2.40
Liberia	€97.09	€103.20	€101.65	€100.13	€83.12	€273.60	€144.20	€380.00	€183.60	€144.79	€127.46	€132.37	€1,718.21
Malaysia		€20.70		€3.80					€1.80		€0.70	€0.19	€25.83
Marshall Islands National LRIT Data Centre	€100.51	€103.93	€101.08	€107.69	€123.50	€207.00	€161.00	€135.00	€110.00	€109.44	€131.67	€122.55	€1,670.91
Pakistan National LRIT Data Centre					€0.80								€0.80
Panama National LRIT Data Centre	€123.50	€140.22	€139.01	€152.38	€176.70	€161.60	€210.00	€352.00	€152.00	€278.72	€128.00	€110.80	€2,036.21
Philippines National LRIT Data Centre	€18.45	€3.80		€5.13	€10.45	€22.00	€7.80	€3.00	€3.40		€0.57	€5.13	€75.71
Qatar National LRIT Data Centre	€2.78	€5.80	€3.42			€1.80							€11.80
Republic of Korea National LRIT Data Centre	€5.14						€2.60	€4.60	€2.40	€7.50	€7.65	€1.33	€17.39
Russia	€229.00	€264.86	€298.32							€170.25	€396.75	€472.25	€2,820.51
Saint Kitts and Nevis	€14.75	€24.75	€56.62	€24.51	€50.18	€57.39	€62.51	€53.58	€12.40	€48.55	€35.10	€75.10	€529.91
Saint Vincent and the Grenadines National LRIT Data Centre	€97.08	€9.12	€9.70	€21.51	€21.33	€12.35	€27.55	€50.15	€31.99	€32.49	€39.00	€31.31	€355.81
Seychelles				€0.57	€1.90	€1.07			€1.00				€4.54
Singapore National LRIT Data Centre	€34.01	€33.89	€39.13	€63.12	€37.87	€151.50	€47.75	€55.00	€75.35	€36.52	€61.90	€30.60	€930.39
Turkey/Syria	€4.37	€2.47	€2.55	€2.85	€3.66		€1.00		€3.45	€1.14	€1.14	€1.14	€28.21
United States National LRIT Data Centre	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00
Vanuatu		€8.55	€8.17	€2.87	€2.85	€0.00	€21.00	€1.27	€1.25	€0.59	€0.57		€35.41
Bangladesh National LRIT Data Centre													
Grand Total													

ANNEX 3: STATISTICAL ODCS CONSUMPTION REPORT - PER BILLABLE ITEM PER MONTH

Values where blurred due to confidentiality purposes

Sum of TOTAL_AMOUNT	Column Labels				
Row Labels	Archived Report	Periodic Rate Change	Poll Report	Position report	Grand Total
2012-01	€47.50			€1,651.71	€1,699.21
2012-02	€11.40		€0.38	€1,654.69	€1,666.47
2012-03	€0.37		€0.05	€1,709.24	€1,710.66
2012-04	€67.26	€4.56	€0.24	€1,463.37	€1,535.43
2012-05	€8.74	€2.28	€0.19	€1,592.69	€1,603.90
2012-06				€2,481.30	€2,481.30
2012-07	€0.80			€2,362.46	€2,363.26
2012-08	€38.95	€2.45		€2,554.15	€2,595.55
2012-09	€35.71			€2,249.97	€2,285.68
2012-10	€1.41		€0.19	€2,366.78	€2,368.38
2012-11	€1.56			€2,527.42	€2,528.98
2012-12				€2,055.63	€2,055.63
Grand Total	€205.95	€6.29	€0.66	€15,963.75	€16,236.65

ANNEX 4: STATISTICAL GROUP1, 2 AND 3 CUSTOMER CONSUMPTION REPORT - PER CUSTOMER PER MONTH

Values where blurred due to confidentiality purposes

Sum of MONTH_CONSUMPTION	MONTH												
CG_NAME	2012-01	2012-02	2012-03	2012-04	2012-05	2012-06	2012-07	2012-08	2012-09	2012-10	2012-11	2012-12	Grand Total
Belgium													
Bulgaria	€0.00	€7.70	€12.54	€12.65	€13.20	€10.84	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€56.33
Cyprus	€44.57	€0.00	€0.11	€99.18	€14.49	€0.11	€0.00	€0.64	€30.48	€47.45	€21.25	€15.64	€274.80
Denmark	€0.04	€1.00	€0.04	€0.00	€0.00	€0.00	€0.04	€24.91	€0.00	€4.97	€2.07	€12.04	€50.17
Estonia	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00
Finland	€97.77	€105.92	€123.60	€123.47	€137.89	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€598.64
France	€1.00	€135.30	€144.21	€139.61	€142.12	€139.15	€133.87	€40.00	€0.11	€150.61	€135.08	€127.98	€1,459.81
Germany	€0.02	€0.00	€0.00	€0.11	€0.00	€0.00	€4.16	€0.00	€2.71	€0.01	€0.00	€0.00	€0.00
Gibraltar (United Kingdom)	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00
Greece	€13.20	€13.28	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.11	€0.00	€0.00	€0.00	€27.00
Iceland	€200.50	€251.42	€114.04	€245.72	€219.32	€200.00	€334.99	€200.00	€344.41	€210.00	€102.39	€193.64	€3,121.10
Ireland	€705.01	€615.60	€705.33	€667.21	€700.73	€771.47	€610.00	€659.46	€740.68	€784.81	€653.10	€676.48	€8,818.80
Italy	€30.12	€15.00	€07.46	€47.81	€50.57	€33.42	€57.02	€49.91	€11.03	€72.76	€100.91	€75.64	€600.10
Latvia	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00
Lithuania	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00
Luxembourg	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€12.52	€11.00	€0.00	€23.52
Malta	€0.11	€13.20	€45.09	€59.64	€59.01	€78.32	€100.43	€35.75	€0.00	€130.87	€118.12	€92.40	€790.90
Netherlands	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00
Norway	€775.00	€751.01	€711.08	€692.28	€636.35	€631.10	€672.00	€666.11	€676.19	€4,210.41	€1,399.44	€1,105.87	€10,833.50
Poland	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00
Portugal	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00
Romania	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00
Slovenia	€4.73	€12.96	€13.42	€13.09	€13.04	€12.76	€13.20	€3.27	€0.00	€13.42	€13.09	€13.42	€120.10
Spain	€0.00	€3.23	€0.17	€0.00	€2.28	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€5.68
Sweden	€0.00	€0.00	€4.95	€11.07	€13.31	€13.09	€13.53	€3.46	€0.00	€13.31	€13.20	€13.64	€103.10
United Kingdom	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00
Grand Total													

ANNEX 5: STATISTICAL ASP SUPPLIER CONSUMPTION REPORT - PER CUSTOMER PER MONTH

Values where blurred due to confidentiality purposes

Sum of TOTAL_AMOUNT	Column Labels			
Row Labels	Periodic Rate Change	Poll Request	Position report	Grand Total
2012-01			€1,651.71	€1,651.71
2012-02		€0.38	€1,654.69	€1,655.07
2012-03		€0.95	€1,709.24	€1,710.19
2012-04	€4.56	€0.24	€1,465.37	€1,468.17
2012-05	€2.28	€0.19	€1,592.69	€1,595.16
2012-06			€2,481.90	€2,481.90
2012-07			€2,362.46	€2,362.46
2012-08	€2.45		€2,554.15	€2,556.60
2012-09			€2,249.97	€2,249.97
2012-10		€0.19	€2,366.78	€2,366.97
2012-11			€2,527.42	€2,527.42
2012-12			€2,000.00	€2,000.00
Grand Total				

ANNEX 6: STATISTICAL GROUP 2/3 SUPPLIER COMMISSION REPORT - PER CUSTOMER PER MONTH

Values where blurred due to confidentiality purposes

Sum of TO_REFUND		Column Labels			
Row Labels	Kingdom)	British Virgin Islands (United Kingdom)		Falkland Islands (Malvinas) (United Kingdom)	Netherlands Antilles (Netherlands)
		Croatia			Grand Total
2012-01		€2.40	€74.75	€26.50	€102.55
2012-02		€7.80	€128.07	€13.29	€150.12
2012-03			€106.04	€22.88	€129.73
2012-04		€3.19	€101.07	€26.8	€141.29
2012-05			€133.70	€1.65	€112.39
2012-06		€0.11	€156.92	€26.40	€88.42
2012-07			€123.21	€30.80	€142.03
2012-08			€166.68	€39.27	€173.01
2012-09		€0.50	€199.61		€160.21
2012-10		€0.20	€119.74		€104.23
2012-11		€6.16	€141.35	€9.24	€134.76
2012-12		€13.20	€119.33	€22.25	€89.03
Grand Total					

ANNEX 7: ASP NON-BILLABLE TRANSACTIONS

Non-Billable Transaction Category	Non-Billable Transaction Type	Non-Billable Transaction Description
Periodic Position Report	Periodic Position Report wrongly sent, duplicate	Unrequested duplicate position. The same physical position (IMO Number + date/time + coordinates) was sent more than once in separate Periodic Position Reports, unrequested.
Polled Position Report	Polled Position Report wrongly sent, duplicate/extra	Polled Position Report was sent wrongly. In response to a single One-Time Poll Request, multiple Position Reports were provided. Recipient was only entitled to one Position Report in response to a One-Time Poll Request.
Other Position Report	Position Report wrongly sent, other invalid data	Position Report was invalid. It contained invalid data (for example, a position timestamp in the future) which makes it not a valid Vessel Position.
Changes to Ship Reporting Rate	Request to change ship reporting rate, no response received	A request was made to change the periodic reporting rate of a vessel. No response was received (no Receipt message, and no change in the reporting interval of the vessel).
Position Requests Not Answered	Periodic request, no response received	Periodic Position Requests to which no response (Receipt or Position Report) was received.
	One time poll request, , no response received	One-Time Poll Requests to which no response (Receipt or Position Report) was received.

ANNEX 8: ODCS NON-BILLABLE TRANSACTIONS

Non-Billable Transaction Category	Non-Billable Transaction Type	Non-Billable Transaction Description
Periodic Position Report	Periodic Position Report wrongly sent, duplicate	Unrequested duplicate position. The same physical position (IMO Number + date/time + coordinates) was sent more than once in separate Periodic Position Reports, unrequested.
	Periodic Position Report wrongly sent, no entitlement	Periodic Position Report was sent wrongly. Recipient was not entitled to this vessel position based on the location of the vessel in relation to LRIT boundaries (as defined in the DDP) that were in effect at the time of the position, or the vessel position was sent in response to a Periodic Position Request that was not in effect at the time the position was sent.
	Periodic Position Report wrongly sent, stop was in effect	Periodic Position Report was sent wrongly. An applicable Coastal State Stop Request or Port State Stop Request was in effect at the time, and therefore the Position Report should not have been sent.
Polled Position Report	Polled Position Report wrongly sent, coastal/port no entitlement	Polled Position Report was sent wrongly. Recipient was not entitled to this vessel position based on the location of the vessel in relation to LRIT boundaries (as defined in the DDP) that were in effect at the time of the position.
	Polled Position Report wrongly sent, coastal/port duplicate/extra	Polled Position Report was sent wrongly. In response to a single One-Time Poll Request, multiple Position Reports were provided. Recipient was only entitled to one Position Report in response to a One-Time Poll Request.
	SAR Position Report	Position Report provided in response to a SAR SURPIC or SAR Position Request
Archive Position Report	Archive Position Report wrongly sent, duplicate	Position Report is an unrequested duplicate position. The same physical position (IMO + date/time + coordinates) was sent more than once in separate Position Reports, in response to the same Archive Data Request.

Non-Billable Transaction Category	Non-Billable Transaction Type	Non-Billable Transaction Description
	Archive Position Report wrongly sent, no entitlement	Position Report was sent wrongly. Recipient was not entitled to this vessel position based on the location of the vessel in relation to LRIT boundaries (as defined in the DDP) that were in effect at the time of the position.
	Archive Position Report wrongly sent, no entitlement invalid DTG	Position Report was sent wrongly. Recipient was not entitled to this vessel position because the DTG (date/time) of the position did not fall within the time frame of the Archive Data Request.
Most Recent Position Report	Most recent Position Report wrongly sent, coastal/port duplicate/extra	Position Report was sent wrongly. In response to a single Most Recent Position Request, multiple Position Reports were provided. Recipient was only entitled to one Position Report in response to a Most Recent Position Request.
	Most recent Position Report wrongly sent, coastal/port no entitlement	Position Report was sent wrongly. Recipient was not entitled to this vessel position based on the location of the vessel in relation to LRIT boundaries (as defined in the DDP) that were in effect at the time of the position.
Other Position Report	Position Report wrongly sent, invalid claim of flag state response type	Position Report was invalid. Although it came from a foreign DC, the Position Report listed "Flag" as the response type.
	Position Report wrongly sent, invalid Reference ID	Position Report was invalid. The Reference ID included in the Position Report could not be matched to any request message ID sent to the provider DC.
	Position Report wrongly sent, other invalid data	Position Report was invalid. It contained invalid data (for example, a position timestamp in the future) which makes it not a valid Vessel Position.
Receipt	Receipt, wrongly sent, invalid Reference ID	Receipt message was invalid. The Reference ID included in the Receipt message could not be matched to any request message ID sent to the provider DC.
	Receipt sent in response to stop request	The Receipt message was sent in response to a Coastal State or Port State Stop Request. In some cases this may be valid (e.g. if we made a Stop Request for a vessel that is not flagged to the country to whom we sent the request). At other times, it may not be valid (e.g. if another

Non-Billable Transaction Category	Non-Billable Transaction Type	Non-Billable Transaction Description
		country treats a stop request just like any periodic request and sends a “not entitled to data” receipt message).
	SAR Receipt	Receipt Message provided in response to a SAR SURPIC or SAR Position Request
	Extra or Duplicate Receipt	Receipt that is in response to a one time poll, most recent position, or archive data request that had already been responded to with either a position report or another Receipt.
	Other Receipt	A Receipt that was sent in response to a message that was not a position request or SAR SURPIC message.