

Quarterly Report

Q1 - 2015

EU LRIT CDC

and

LRIT Ship DB

DOCUMENT HISTORY

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EMSA, Commission, LRIT NCA, LRIT end-users

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1. SCOPE OF THE DOCUMENT

This document provides information on the performance of the European Union LRIT Cooperative Data Centre (EU LRIT CDC or EU CDC) and on outstanding events with respect to the EU CDC activities and operations during the 1st quarter of 2015. The report is available to all LRIT users on the User Web Interface (UWI) of the EU CDC.

To avoid overloading the report with figures, some graphs show only full data for one month, but the result for the quarter is presented and summarized in tables.

This document is divided into two parts:

- **EU CDC Main figures** gives a general overview of the status of the EU CDC, its main issues and Key Performance Indicators (KPI);
- **Annexes** which show more detailed graphs and figures for the EU CDC which are referred to in the first part.

2. EU CDC MAIN FIGURES

2.1. EU CDC HIGHLIGHTS

The following are the highlights for the first quarter of 2015:

- **Quality of Service:** one major incident due to a CSP outage occurred on the 21 February 2015 impacting the 24h QoS this day. Nevertheless, on average the IMO 30d QoS was above the target of 99%.
- **Montenegro joined the EU CDC:** Montenegro joined the EU CDC on the 14 January 2015. This raises the number of EU CDC participating countries to 39, also 5 ships were added to the EU LRIT Ship Database.
- **Portugal delegated the monitoring of its fleet:** Portugal joined the team of the Contracting Governments having delegated the monitoring of their fleet to EMSA on the 29 January 2015. It is the 11th country in this group. EMSA, through the ASP, monitors now more than 50% of the EU CDC fleet.
- **EU CDC release v2.3 deployed:** the testing was completed and the release deployed successfully on the 25 March 2015. It corrects 28 anomalies, among them 2 IMSO audit findings.
- **LRIT Consumption Tool (LCT) release v2.3 under testing:** the testing of the release 2.3 of LCT was launched in Q1 2015 and the deployment in production is foreseen in Q2 2015. This version corrects 18 anomalies, and includes 3 evolutions.
- **New tender for EU CDC recognised ASP:** the current contract with the recognised ASP CLS will terminate by the end of 2015. A new tender for contracting a recognised ASP was published on the EU Official Journal and on EMSA website on the 25 February 2015.

2.2. KEY PERFORMANCE INDICATORS

Table 1 presents the KPIs used for measuring the EU CDC performance (most of the KPIs are based on the IMO requirements - time format is hh:min):

Activity/Service	Performance Indicator	January	February	March	Quarter	Target
EU LRIT CDC System operational	Availability of the system over the period	99.53%	99.55%	99.53%	99.54%	≥ 99.00%
	Maximum continuous downtime of the EU LRIT CDC	00:04	00:04	00:04	00:04	< 12:00
EU LRIT CDC Reporting performance	Percentage position reports delivered according to IMO requirement	99.73%	99.00%	99.76%	99.51%	≥ 99.00%
EU LRIT CDC user web interface	Availability of the User Web Interface	99.89%	99.82%	99.62%	99.78%	≥ 99.00%

Table 1 – Key Performance Indicators

All the Key Performance Indicators were met. The User Web Interface for the EU CDC had a very high availability over 99.7 %.

This KPI “EU LRIT CDC user web interface” was raised from 95% to 99% ensuring the maximum availability of the LRIT functionalities to end users in their day to day work.

The availability of the Web Interface of the Ship Database (not presented in the Table 1) was 99.9% during this quarter.

2.3. SYSTEM PERFORMANCE

This section refers to messages delivered by the EU CDC. The Quality of Service (QoS) measures if messages were properly delivered.

According to MSC Res. 263(84) §13 document, the IMO Definition of QoS is:

$$\text{QoS} = \frac{\text{Number of delivered LRIT reports meeting latency requirements}}{\text{Total number of LRIT information requests}} \times 100\%$$

The QoS refers to Periodic (type 1), Poll (type 2) and SAR (type 3) position reports which were delivered by the EU LRIT CDC as per IMO requirements.

The target QoS is:

- 95% over any 24-hour period (24h QoS)
- 99% over any 1 month (30d QoS)

Table 2 presents the monthly QoS covering both the periodic and polled messages:

	January	February	March
Monthly IMO-30d QoS (target 99%)	99.73%	99.00%	99.76%
Number of delivered reports that did not meet the IMO requirements	2,524	8,441	2,203
Percentage of delivered reports that did not meet the IMO requirements	0.27%	1.00%	0.24%
Total number of reports sent by EU CDC	923,638	843,100	932,161

Table 2 – Monthly 30d QoS

The QoS was above the IMO requirement for the entire quarter. One major incident: a CSP outage on the 21 February 2015, impacted the 24h QoS of this day, but the IMO 30d QoS for February reached the target of 99%.

Further detailed information on the 24h and 30d QoS as well as the QoS for periodic reports or for polled reports can be found in § 3: Annexes in §3.3 System Performance.

The CSPs latency, which also affects the performance of the DC, was stable and on average between 1 and 4 minutes.

2.4. SHIP INTEGRATION AND REPORTING

Table 3 presents a snapshot of the situation of the ship integration and ship reporting during the first week of each month:

	January	February	March
Total of ships in the EU LRIT CDC	8849	8916	8922
Ships integrated in the EU LRIT CDC (*=% of total of ships)	8657 97.8% *	8724 97.9% *	8730 97.9% *
Ships that have reported in the last 3 days (**=% of ships integrated)	7688 88.8% **	7798 89.3% **	7746 88.7% **

Table 3 – Integration and reporting statuses

The formula used for the ship reporting calculation is:

$$\% \text{ ship reporting} = \frac{\text{ships statuses normal, under and over reporting}}{\text{all ships integrated}} \times 100\%$$

It should be noted that “stopped ships” are also included in the number of the integrated ships.

Table 4 presents a summary of the actions taken, mainly to improve the reporting, during the quarter:

	January	February	March
Number of 'Stop'	62	41	51
Number of 'Restart'	1056	892	1076
Number of 'Continue integration'	19	27	29
Number of 'DNID upload'	555	461	449

Table 4 – Integration and reporting actions

The activity of restarting ship terminals not reporting as expected is measurable through the number of restarts and DNID uploads done by LRIT users or the ASP, for countries which delegated the monitoring of their fleet to EMSA.

Figure 1 shows the reporting evolution:

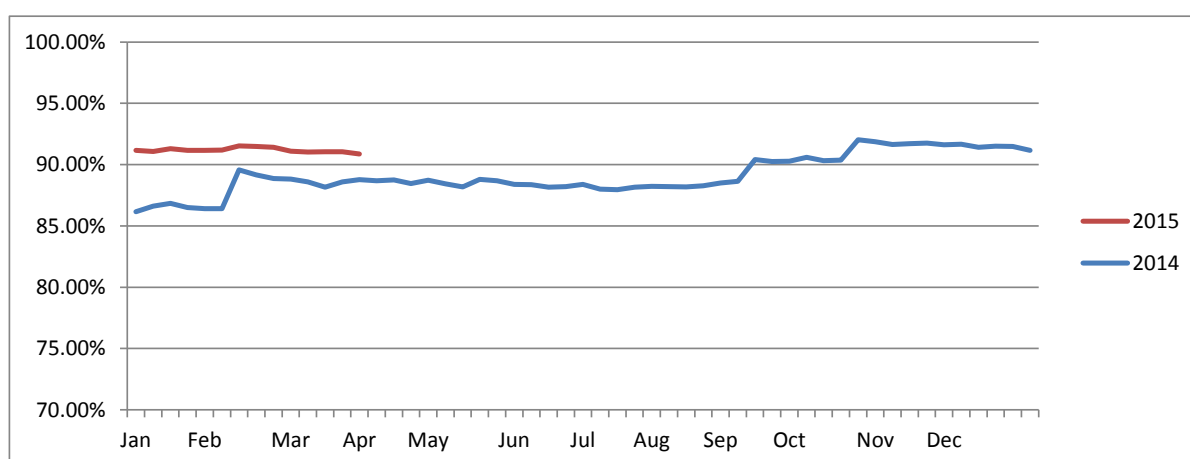


Figure 1 – Evolution of reporting rate

The reporting evolution is calculated as follow:

$$\% \text{ ship reporting} = \frac{\text{ships statuses normal, under and over reporting}}{\text{ships statuses normal, under, over and not reporting}} \times 100\%$$

Ships stopped, either by the national administrations or by the ASP, are not included in this graph.

With Portugal (since the 29 January 2015) there are currently 11 CGs having delegated the monitoring of their fleet to EMSA. For these 11 flags, the ASP takes the appropriate actions in case of not reporting ships, or report to the CGs the actions that remain under the responsibility of the CGs, such as updating the LRIT Ship DB or asking the shipowner to correctly log in the terminal to the satellite network.

EMSA, through the ASP, monitors now more than 50% of the EU CDC fleet. The good result on the reporting is also related with some CGs monitoring closely their fleet, and taking the appropriate actions to restart the reporting when needed. A high reporting rate is directly linked to the active monitoring of the fleet.

2.5. ACTIVITIES IN THE EU CDC

This chapter details the user activity in the UWI, the amount of requests made by the CGs, and the positions processed by the EU CDC. It should be noted that the activity generated by ship integration and reporting (Stop, Restart, DNID upload...) is reported in section 2.4 above.

89% of the requests came from the IDE. The remaining 11% are split between requests generated automatically by the SAM anti-piracy tool, and requests generated by EU CDC end-users: SAR, Coastal, Flag, and Port.

Around 98% of LRIT position reports came from the EU CDC ASP (mandatory reporting), the remaining position reports came from the IDE.

Inmarsat C is the biggest CSP of our ASP, routing more than 93% of the ASP reports.

Figures showing these data are in § 3: Annexes § 3.4.1 General.

2.5.1. User activity in the UWI

Table 5 below illustrates the user activity in the User Web Interface of the EU CDC during the month of March. An inactive user is a user which has not connected to the EU CDC during this month.

Contracting Governments	Total users	Inactive users	Number of connections
Belgium	52	46	139
British Virgin Islands (United Kingdom)	1	1	0
Bulgaria	12	11	11
Croatia	3	1	84
Curaçao (Netherlands)	5	3	81
Cyprus	5	2	93
Czech Republic	1	1	0
Denmark	100	89	81
Estonia	8	6	24
Falkland Islands (Malvinas)	2	1	1
Finland	12	10	71
France	33	23	86
Germany	14	9	175
Gibraltar (United Kingdom)	4	3	7
Greece	57	48	562
Greenland (Denmark)	16	15	107
Iceland	25	23	30
Ireland	5	4	1
Italy	31	15	557
Latvia	10	8	58
Lithuania	7	2	106
Luxembourg	9	6	23
Malta	14	9	72
Montenegro	17	6	172
Netherlands	11	6	87
Norway	51	46	47
Poland	16	10	192
Portugal	10	6	43
Romania	7	7	0
Slovakia	1	1	0
Slovenia	21	21	0
Spain	48	38	201
Sweden	29	28	1
United Kingdom	23	20	14
TOTAL	660	525	3126

Table 5 – User activities per flag

Table 6 below summarizes the user activity in the UWI during the quarter:

	January	February	March
Number of users	632	635	660
Number of user connection	2751	2890	3126
Number of inactive users	496	498	525

Table 6 – User activities

Compared with Q4 2014 where the number of users was stable at around 600, this quarter there is a clear increase of almost 10%. This is partly due to the integration of Montenegro in January.

2.5.2. Standard requests activity per Flag

This section deals with requests made by LRIT users and position reports, processed by the EU CDC during March.

Figure 2 shows the standard requests (message type 4: polls, reporting rate changes, requests for most recent and archived positions, stop and restart) made by LRIT Users and the SAM anti-piracy tool, and figure 3 the position reports (messages type 1: periodic position reports, and type 2: polled position reports):

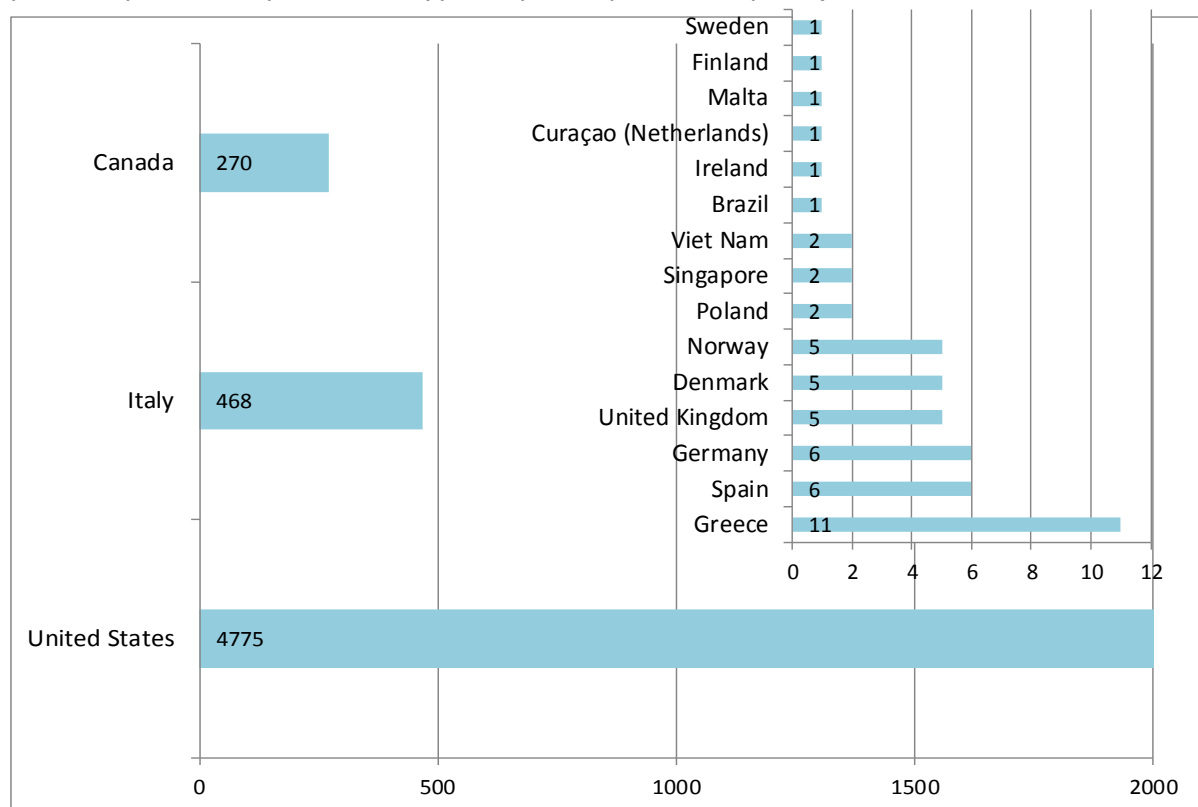


Figure 2 – Number of requests processed by EU CDC (Message type 4)

Figure 2 shows a very low use of the LRIT system in particular by the EU Member States, except Italy which was very active. USA is still the country which makes most requests to the EU CDC to get EU LRIT positions.

Figure 3 presents the number of position reports per flag:

- resulting from the requests shown in figure 2;
- resulting from standing orders (so it includes positions from European ships and non-European ships passing through European waters).

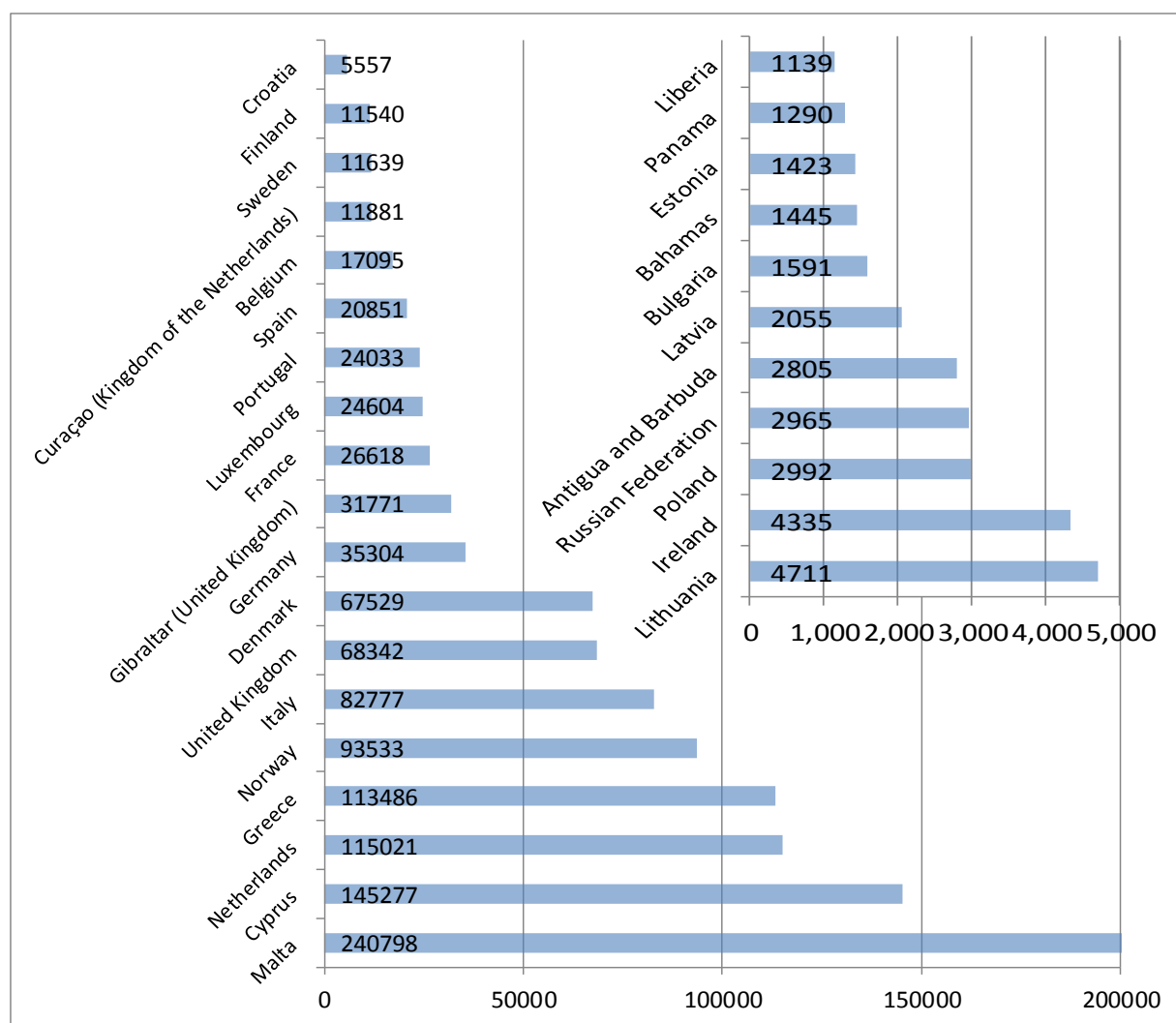


Figure 3 – Number of reports received by the EU CDC (Messages type 1 and 2)

Countries with less than 1000 position reports are not included. Malta, with almost 20% of the EU CDC fleet, is the country with the highest number of position reports received.

2.5.3. SAR requests activity per Flag

For the month of March:

- figure 4 shows the SAR and SARSURPIC requests made by LRIT Users. Countries with less than 4 requests are not included.
- figure 5 shows the related position reports (message type 3). Countries with less than 20 positions received are not included.

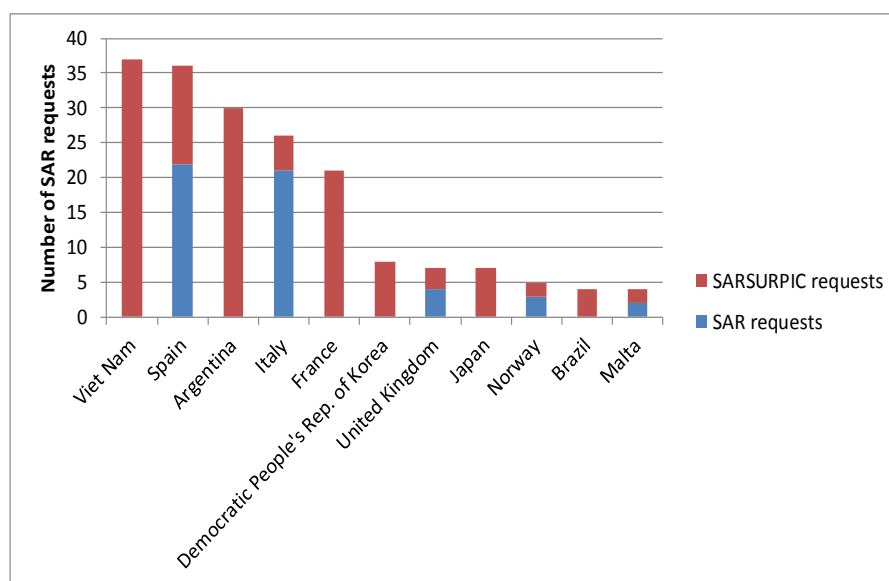


Figure 4 – Number of SAR Requests per Flag

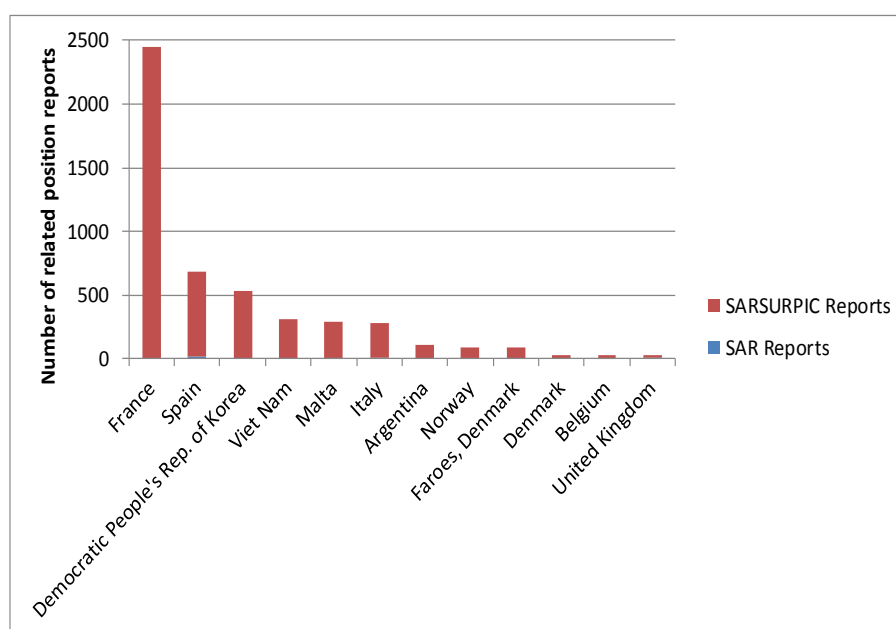


Figure 5 – Number of related position reports received

The SAR SURPIC is a request which is now well known and used by SAR operators. France was the biggest requestors of SAR positions in March.

2.5.4. Evolution of messages exchanged

Position requests are this quarter around 5200 per month, which is stable compared with Q4 2014. Most of these requests come from the USA. More specifically, each EU ship entering the US coastal standing order receives two requests sent by the US DC to change the user from Coastal to Port.

Compared with Q4 2014, the average number of position reports has slightly raised, due to better ship reporting.

Figures showing these data are in § 3: Annexes § 3.4.2 Evolution of Messages exchanged.

2.6. FINANCIAL FIGURES

Figures 6 to 8 below highlight the EU CDC Participants' Paid Consumption, the messages provided and sold by the EU CDC per buying Data Centre and the overall business financial balance, during Q1 2015.

This quarter, EMSA covered almost €330K of consumption costs. The remaining costs which are paid by the EU CDC Participants amount to €10.1K. The few relevant buyers of non-mandatory messages are Ireland and Norway (Figure 6).

By far, the biggest buyer of EU CDC data was the USA which bought around half the amount sold. It is followed by the Data Centre of Canada (Figure 7).

The EU LRIT CDC provided (EU CDC sells) €75K of LRIT messages to other DCs (Figure 8).

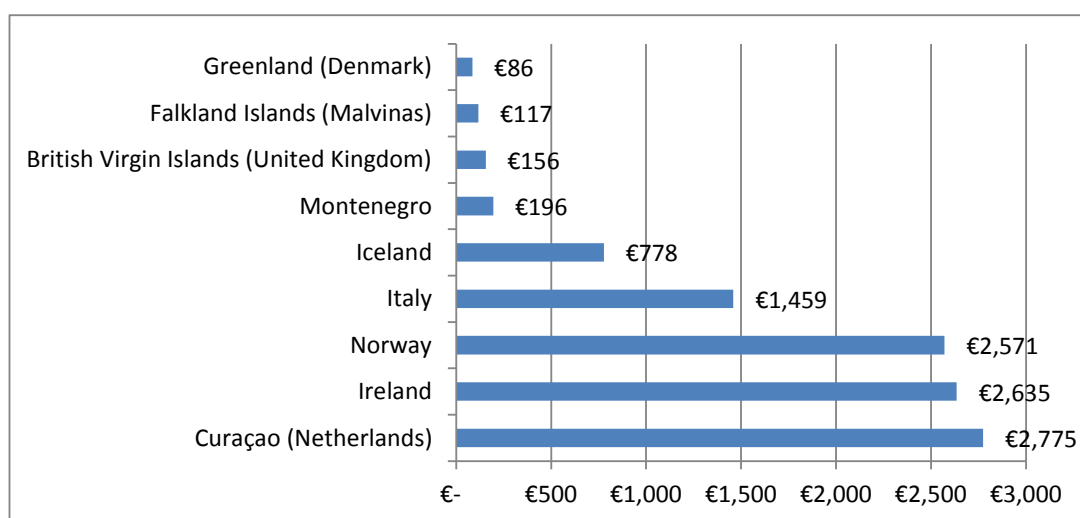


Figure 6 – EU CDC Participants' Paid Consumption

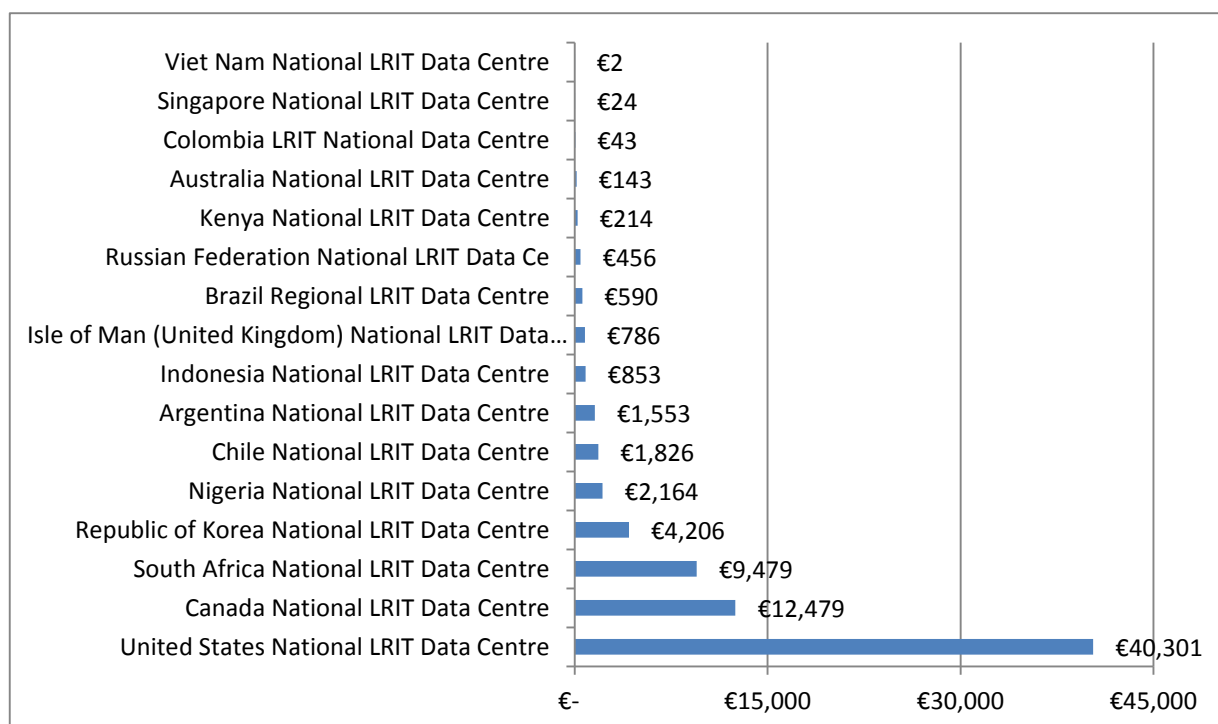


Figure 7 – Messages Sold by the EU CDC per Buying Data Centre

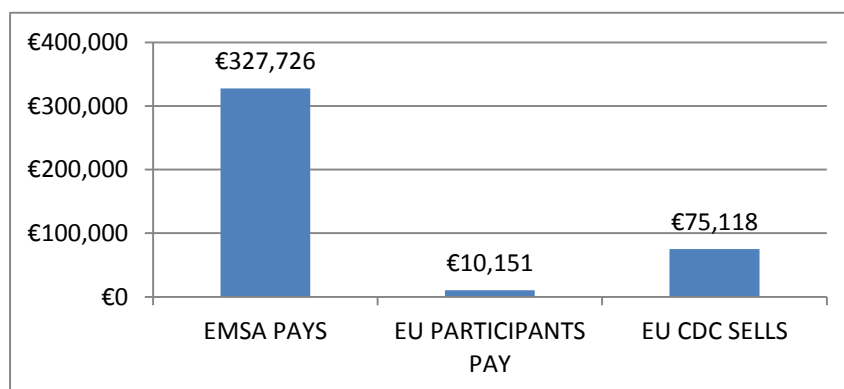


Figure 8 – Overall LRIT Business Financial Monthly Balance

Legend:

- *EMSA pays*: for all costs of mandatory periodic reports (periodic 6-hour reporting from EU ships), SAR messages and ship integration for Member States and EFTA countries.
- *EU CDC participants pay*: for ship integration and LRIT messages for overseas territories, and for all non-mandatory messages (on-demand), including reports from standing orders. This includes messages from other Data Centres through the IDE and from the EU ASP.
- *EU CDC sells*: all messages concerning ships belonging to the EU LRIT CDC that are requested by other DCs.

2.7. CONCLUSION

- Except one day when a major incident happened with a CSP, this quarter the EU CDC was stable (in terms of performance) fully complying with the IMO requirements.
- Montenegro joined the EU CDC, raising the number of EU CDC participating countries to 39.

3. ANNEXES

3.1. List of acronyms and abbreviations

Acronyms or abbreviations	Description
ASP	Application Service Provider
CSP	Communication Service Provider
EMSA	European Maritime Safety Agency
EU CDC	European Union Cooperative Data Centre
IDE	International Data Exchange
IMO	International Maritime Organization
NCA	National Competent Authority
QoS	Quality of Service
SAR	Search and Rescue
Ship DB	Ship Database
UWI	User Web Interface
N/A	Not Applicable

Table 7 – List of acronyms and abbreviations

3.2. Definitions

According to IMO MSC .1/Circ. 1259/Rev.6, the definitions of internal routing and message types 1 to 6 are the following:

Type	Name	Description/Purpose
N/A	Internal Routing	Regional or Cooperative LRIT Data Centres internally route LRIT information transmitted by ships entitled to fly the flag of the Contracting Governments establishing or participating such centres (LRIT information does not go through the IDE)
1	Periodic position Report	Regular periodic position reports
2	Polled position report	Position report as a result of a one-time poll request
3	SAR position report	Position report as a result of a SAR request
4	Position request	Request by an LRIT user to poll, change the rate of transmission, or request for most recent and archived positions, for a given ship
5	SAR position request	Request by a SAR user to poll or request for most recent and archived positions, for a given ship
6	SAR SURPIC request	Request by a SAR user to get the most recent position in a specific geographical area, broadcast via the IDE to all DCs

Table 8 – Definitions

3.3. System performance

This section refers to messages delivered by the EU LRIT CDC and gives further details on the QoS for the quarter.

3.3.1. Global QoS

Figure 9 illustrates the IMO-QoS for the quarter.

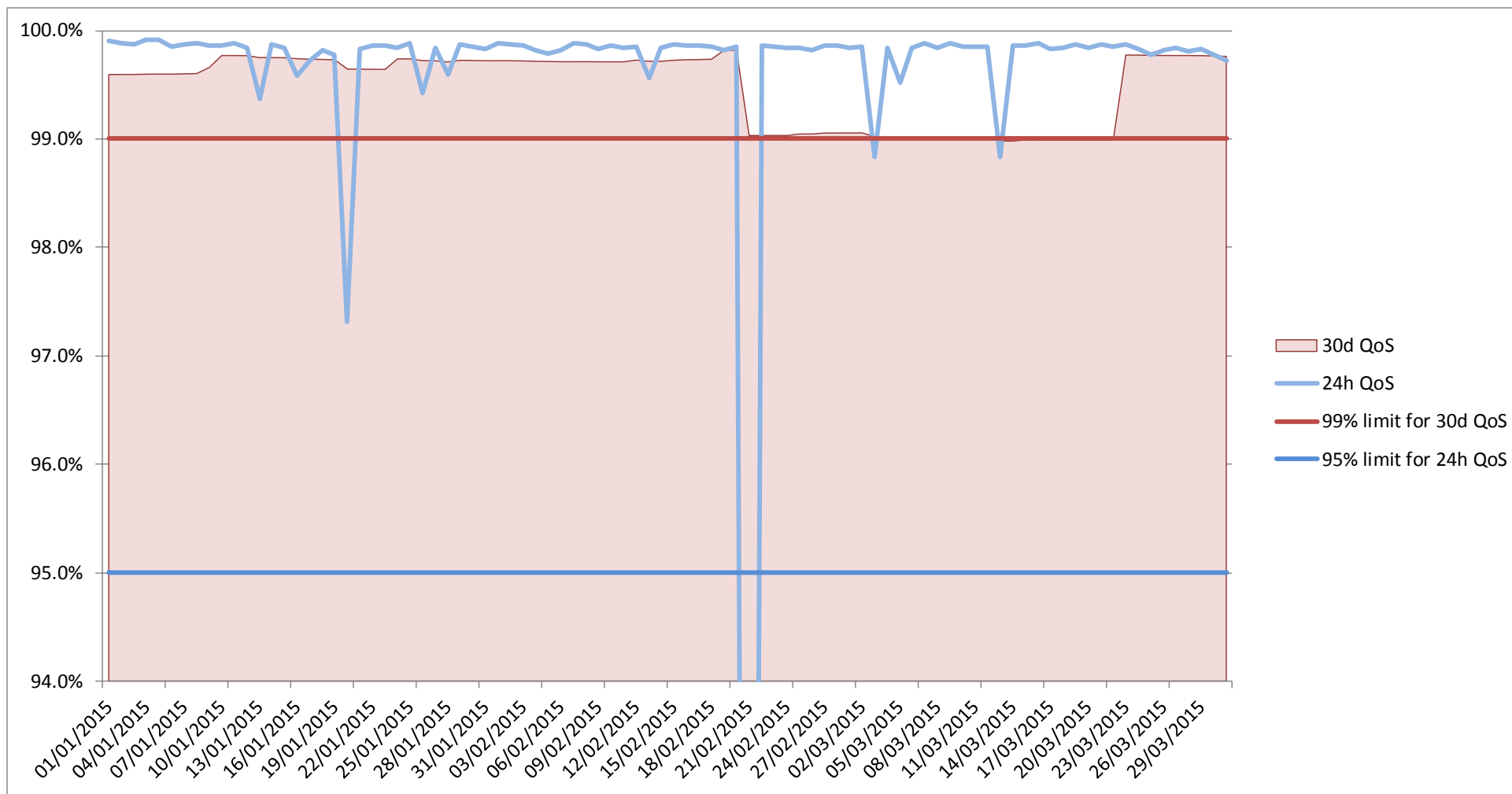


Figure 9 – IMO-24h and 30d QoS

Figure 9 displays one breach in the 24h QoS. This is a consequence of a major incident the 21 February 2015: see section 3.5.

3.3.2. Delivered periodic position reports QoS (type 1)

	January	February	March
Monthly IMO-30d QoS (target 99%)	99.73%	99.00%	99.76%
Number of Reports that did not meet the 15 min limit	2,519	8,439	2,201
Percentage of Reports out of the 15 min limit	0.27%	1.00%	0.24%
Total number of Reports	923,416	842,912	932,039
Average Latency in minutes	2.84	2.72	2.50

Table 9 – Delivered periodic position reports QoS figures

These are mainly the mandatory position reports, sent every 6 hours.

3.3.3. Delivered on-demand position reports QoS (type 2 and type 3)

A poll is the action of sending a position request to a shipborne equipment and waiting for a ship position report or a receipt message. IMO defined that this action should not last more than 30mins to receive a position report.

The table below lists only the polls made to EU LRIT CDC ships, in order to measure the EU LRIT CDC QoS. Reports as a result of polls originated by other DCs are not listed here, to avoid measuring the QoS of other DCs.

	January	February	March
Monthly IMO-30d Poll QoS (target 99%)	100.00%	100.00%	100.00%
Number of Reports that did not meet the 30 min limit	0	0	0
Percentage of Reports out of the 30 min limit	0.00%	0.00%	0.00%
Total Number of Reports	210	185	120
Average Latency in minutes	3.69	4.26	3.80

Table 10 – Delivered on-demand reports QoS figures

3.4. Messages by source

3.4.1. General

The figure below shows the analysis of positions by source, for March.

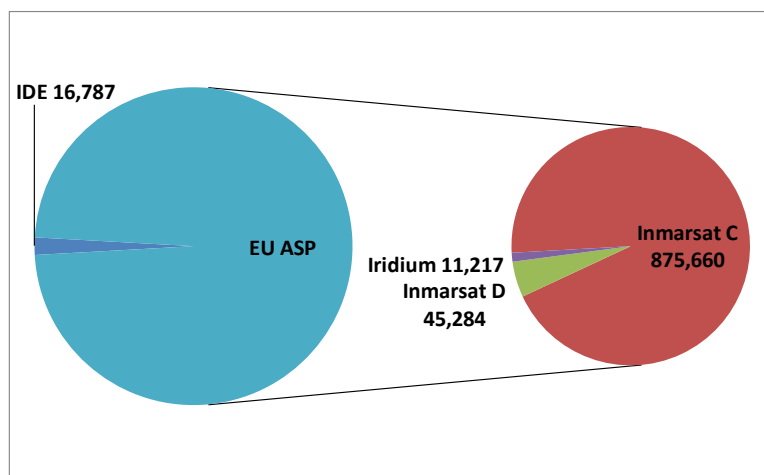


Figure 10 – Position Reports by Source (Message Type 1, 2 and 3)

The 3 pie charts below show the position requests by source, for March.

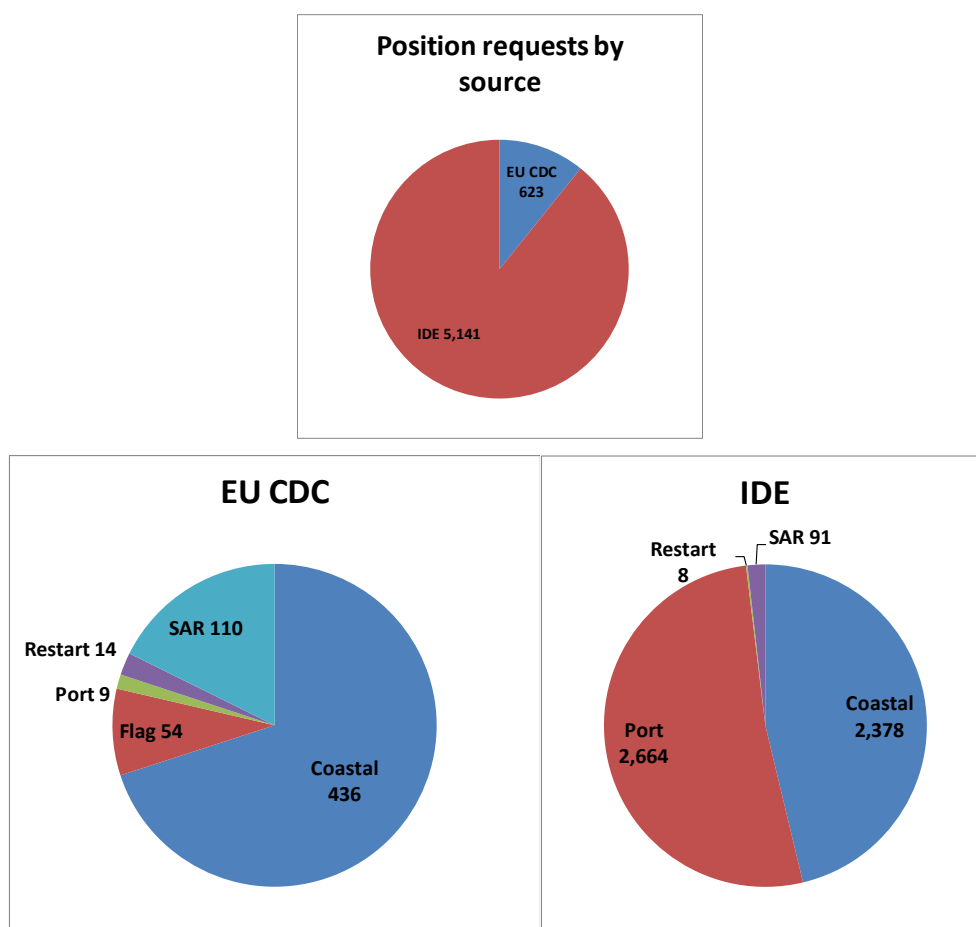


Figure 11 – Position Requests by Source (Message Type 4, 5 and 6)

3.4.2. Evolution of messages exchanged

This section illustrates the evolution of the message flow of the EU CDC.

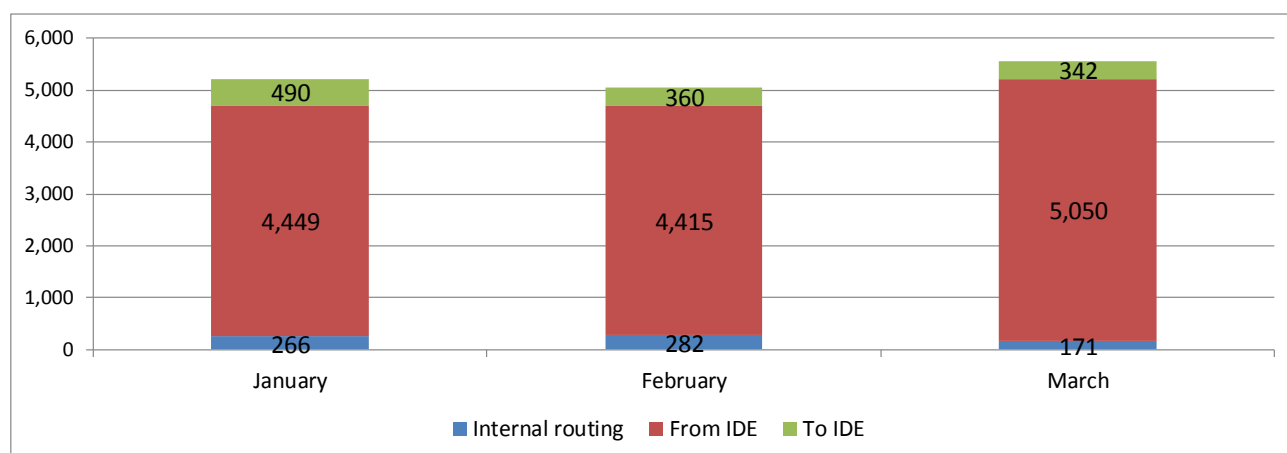


Figure 12 – Number of position requests (Type 4)

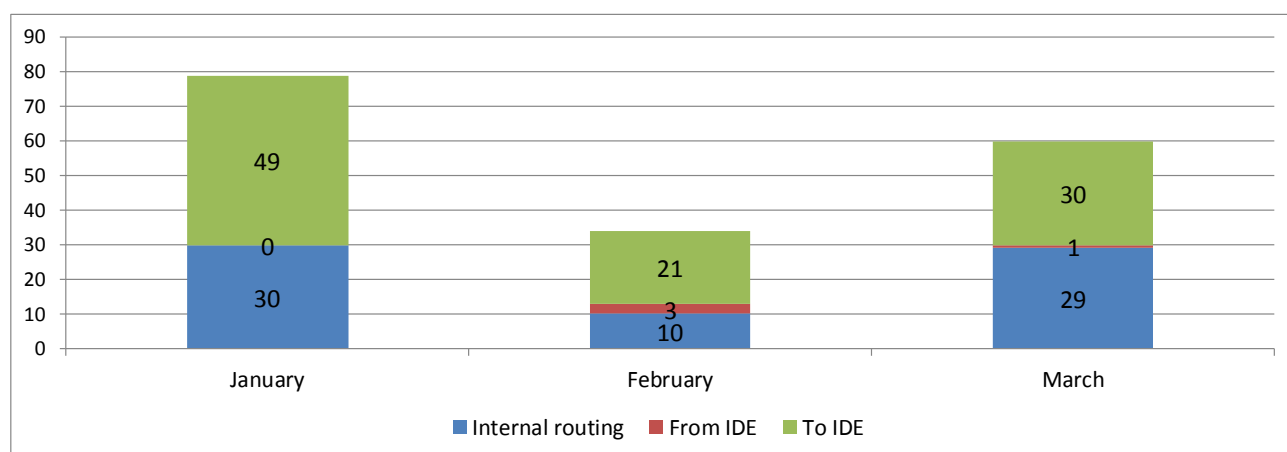


Figure 13 – Number of SAR requests (Type 5)

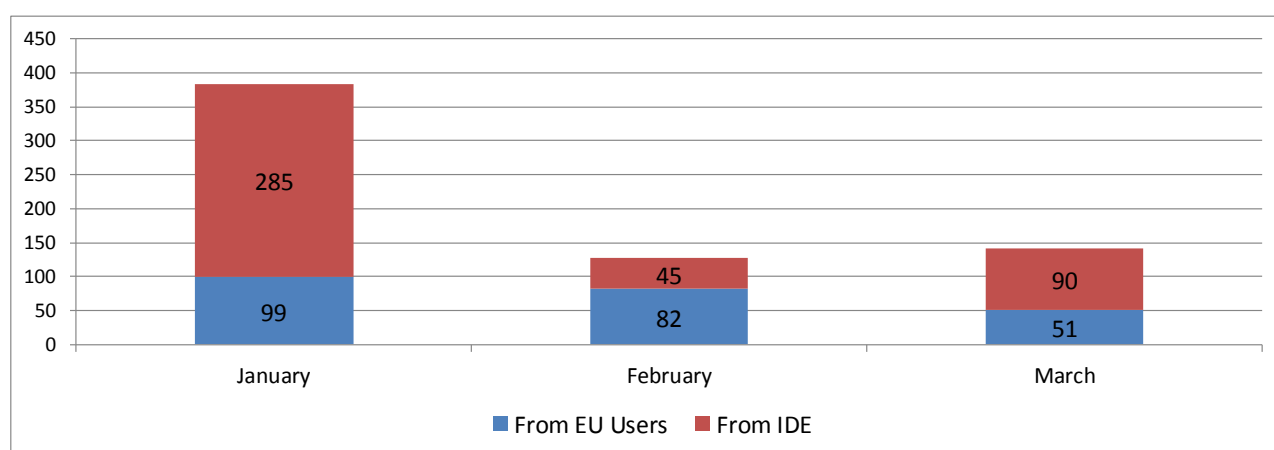


Figure 14 – Number of SARSURPIC requests (Type 6)

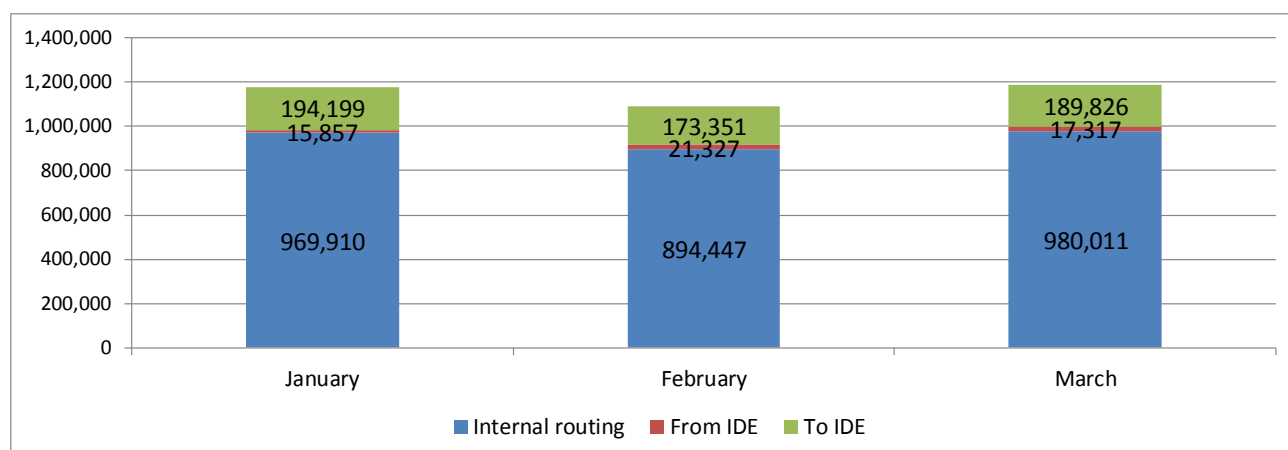


Figure 15 – Number of position reports (Type 1, 2 & 3)

3.5. Incidents and maintenance of the EU CDC

3.5.1. Incident management overview

Incidents in the EU CDC generate tickets in MSS through a monitoring tool called Task Monitor. Calls and emails from EU CGs also generate tickets. For this quarter and the previous one, table 11 shows the repartition of the tickets handled by the MSS:

	Q4 2014	Q1 2015
Number of LRIT CDC and Ship DB tickets out of total number MSS tickets	620 / 6460 (9.6%)	490 / 5722 (8.6%)
<u>Ticket escalation</u>		
Number of tickets handled solely by MSS:	582 (94%)	451 (92%)
Number of MSS tickets escalated to LRIT second line:	38	39
<u>Ticket per type</u>		
Administration and reporting:	17	17
Helpdesk (CGs, ASP...):	207	183
Monitoring and Incident management	3	4
(Task Monitor...), per priority:		
Critical:	3	4
Normal:	393	286

Table 11 – Incident management

During the first quarter 2015, the number of EU CDC and Ship DB tickets decreased around 20% compared with Q4 2014, following a decrease of 16% between Q3 and Q4 2014. The application tends to stabilize after the peak due to the transfer to EMSA infrastructure last year.

One of these 396 events had a major impact, as reflected in the next section.

3.5.2. Major incidents

A major incident is an event that has the following impact:

- IMO 24h QoS<95%; and/or
- Unavailability of the UWI for more than 1 hour.

Foreseen maintenances are not considered as incidents and are detailed in §3.5.3.

This quarter one major incident happened, the 21 February, due to an outage on one of the CSP providing most of the EU CDC position reports. Messages were delayed in both cases. 24h QoS decreased to 76.4%.

3.5.3. Maintenances performed

One main maintenance was done this quarter: the successful deployment of the release v2.3 of the EU CDC, the 25 March 2015. It corrects 46 anomalies, among them 2 IMSO audit findings, and includes 3 evolutions.