

<b>DG TAXUD – EXCISE COMPUTERISATION PROJECT</b>	<b>REF: ECP1-ESS-TESS-APP.A1</b>
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**APPENDIX A: EMCS APPLICATIONS SIZING AND VOLUMES ESTIMATES**

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## **1 Introduction**

This appendix provides the MSAs with a guidance that would help them in evaluating the amount of resources necessary for implementing their National Excise Application (NEA). The appendix includes statistics and estimates for each EMCS message as defined in Appendix D of the FESS. Based on the message sizes and the estimations provided by the MSAs the traffic of EMCS is estimated.

For estimating the EMCS message sizes statistical data were extracted from CS/MISE on December 2010 concerning the messages exchanged over the Common Domain from Milestone M<sub>a</sub> (01/04/2010) up to the time of this writing (30/11/2010). The data from CS/MISE cover the EMCS Phase 2 messages exchanges over the Common Domain only, so for the rest of the messages estimations are provided. The EMCS message sizes are presented in Chapter 2 Size Evaluation.

Statistics and estimates about the EMCS traffic were submitted by MSA on June 2006. A method to evaluate that information and calculate the number of exchanged messages and subsequently provide a raw evaluation of the total amount exchanged is proposed in Chapter 3 Volumes Evaluation.

### **1.1 Trend Analysis**

An important factor to consider throughout the eight months of the extracted statistics from CS/MISE is the trends that might affect the statistical data. MSAs upon evaluating the contents of this appendix may also like to consider the trends presented in the following paragraphs and the conclusions derived from the statistical data.

#### **1.1.1 Average Message Sizes**

Considering the average message size of the IE801 message, the statistics show a fair amount of stability (see Figure 1). In particular, the month with the minimum average size for the IE801 message is May 2010 (6,198 bytes) and the month with the maximum average size for the IE801 message is July 2010 (6,682 bytes). The difference of the minimum average size from the maximum is 484 bytes, which is a percentage of approximately 7% of the overall average size of the IE801 message.

It is, therefore, reasonable to conclude that the average message sizes remain relatively stable.

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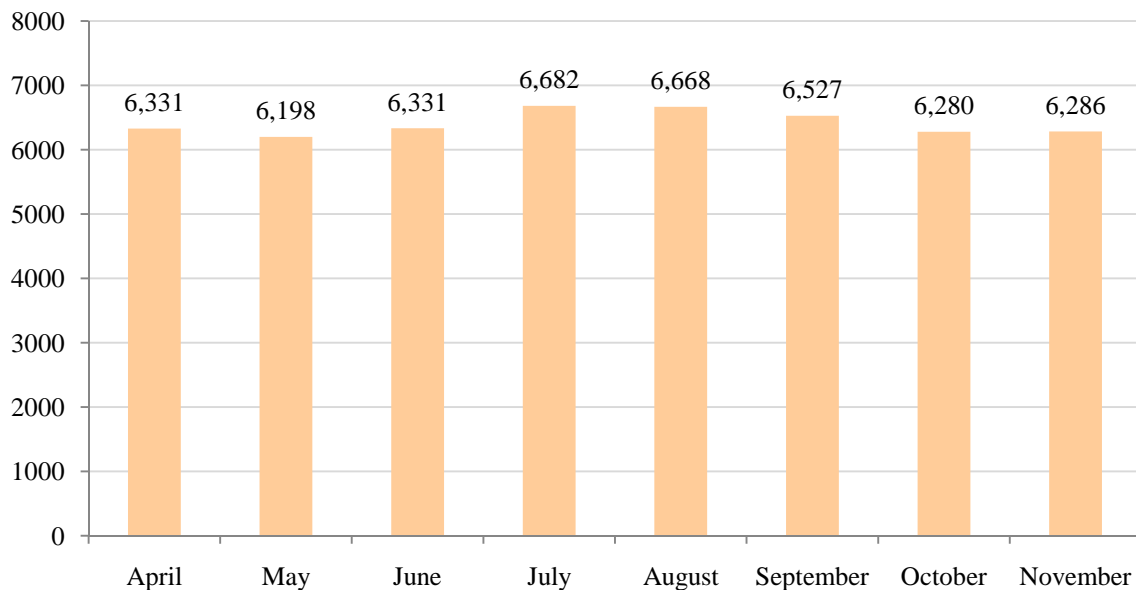


Figure 1: Average message sizes of the IE801 message

### 1.1.2 Maximum and Minimum Sizes

The IE801 messages throughout the months of extracted statistics exhibit a considerable increase of their maximum size. From April (76,494 bytes) until November 2010 (175,855 bytes) the maximum sizes increased by 130% (see Figure 3). Conversely, the minimum sizes remain fairly stable with the exception of July (324 bytes) and August (777 bytes) 2010.

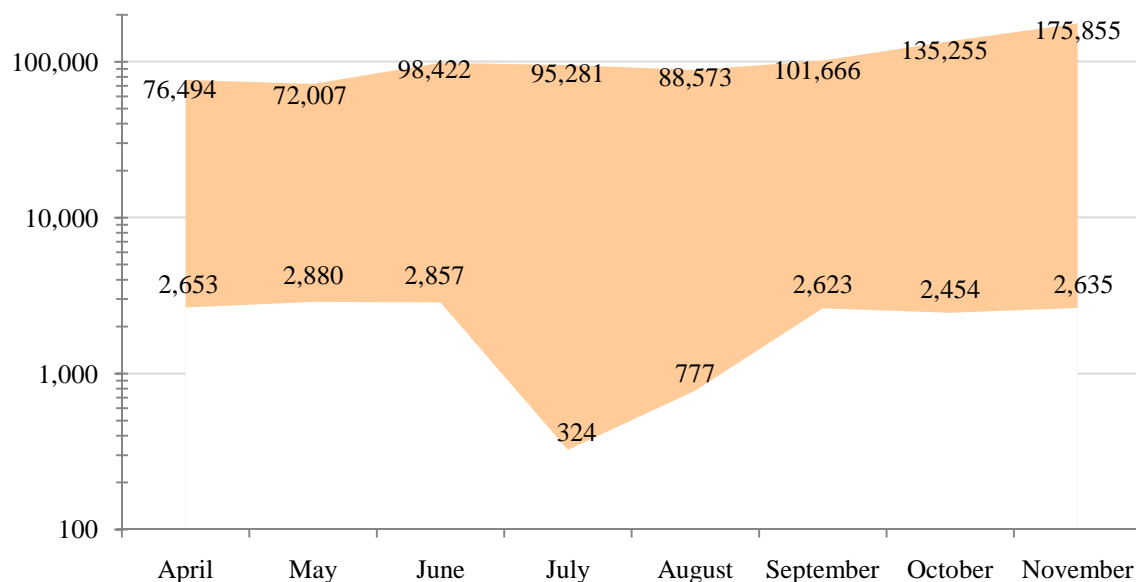


Figure 2: Minimum and maximum sizes of IE801 messages (logarithmic scale)

As shown in the previous paragraph (see 1.1.1), the average message size of the IE801 message is considered relatively stable. Therefore, the increase of the maximum sizes does not affect the average size signifying that there are few occurrences of such maximum sizes.

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### 1.1.3 Total Number of Messages

The extracted statistics of the total number of IE801 messages show a tendency for growth. From the first month (April 2010) until the last month (November 2010), there is a 76% growth (see Figure 3).

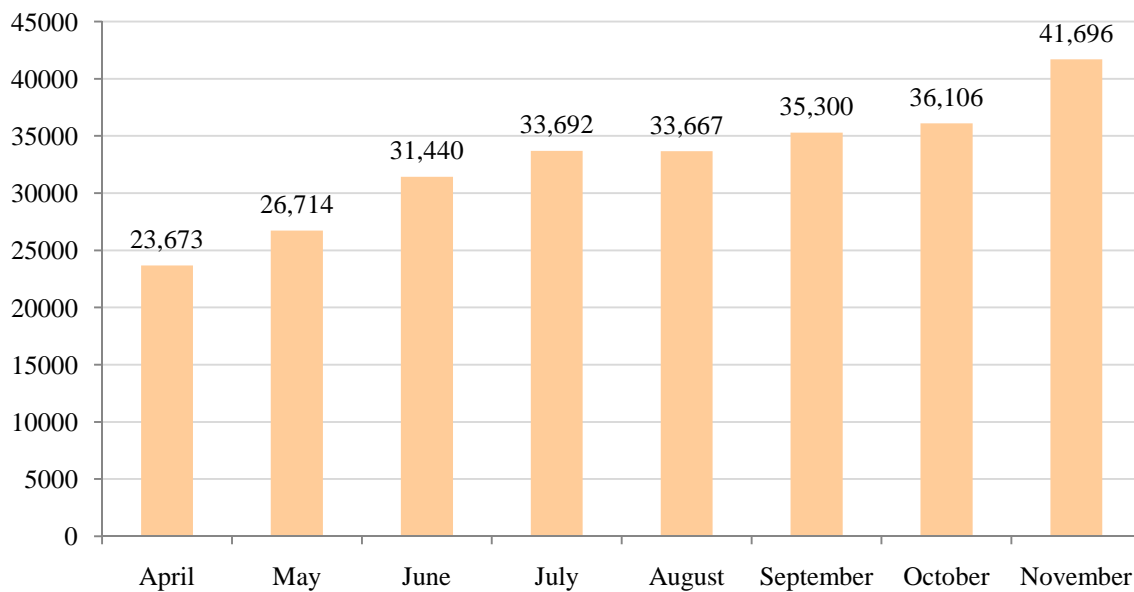


Figure 3: Number of IE801 messages

These figures show a trend towards increasing EMCS traffic that MSAs may want to consider for the future phases of the system.

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## 2 Size Evaluation

Two groups are identified for estimating the size of EMCS Messages:

- messages for which statistics are available in CS/MISE at the time of this writing (see 2.1 Estimations Based on CS/MISE Statistics); and
- the rest of the messages for which statistics are not available and estimations are provided instead (see 2.2 Estimations Based on Message Size Estimations Based on CS/MISE Statistics).

The statistics available from CS/MISE provide the size at infrastructure level (see TESS Section II §2.2 Architectural Levels), so the estimations of the rest of the messages are also considered at infrastructure level by adding a fixed size overhead.

It should be noted that the threshold size limit of messages exchanged over the Common Domain is set to 21 Mbytes (2<sup>20</sup>bytes) as defined in Section II 5.4.2 Message Validation.

### 2.1 Estimations Based on CS/MISE Statistics

The statistics of EMCS Messages extracted from CS/MISE are presented in Table 1.

Message	Population	Min. size (in bytes)	Max. size (in bytes)	Mean size (in bytes)	Standard deviation	Confidence interval
IE701 <sup>1</sup>	6	1,227	3,867	1,894	10	9
IE801	265,117	324	175,855	6,414	12,569	53
IE802	46,052	852	3,720	1,750	2,529	26
IE810	2,959	884	3,690	1,476	2,830	113
IE813	1,366	1,090	7,505	3,262	4,527	266
IE818	236,744	1,102	12,626	2,498	3,642	16
IE821 <sup>1</sup>	3	1,790	1,916	1,853	0	N/A
IE829	2,996	4,029	7,546	4,298	241	10
IE837	3,679	930	4,278	1,587	2,676	96
IE839 <sup>1</sup>	49	3,708	5,142	4,122	734	228
IE904 <sup>2</sup>	17,140	680	3,582	1,991	3,485	58
IE905 <sup>2</sup>	17,129	672	3,568	1,574	3,161	52
IE906 <sup>2</sup>	25,809	756	4,032	1,280	1,649	22
IE917 <sup>2</sup>	598	822	7,915	1,539	2,933	260
IE934 <sup>2</sup>	361	1,928	105,886	16,413	36,164	4,131

Table 1: Statistics of EMCS Messages extracted from CS/MISE

The table contains the following columns:

- **Message:** the message number.
- **Population:** the total number of messages considered in the statistics.
- **Minimum size:** the size of the smallest message.

<sup>1</sup> It should be noted that the population of the IE701, IE821, and IE839 messages is considered too small to derive safe conclusions.

<sup>2</sup> Messages beginning with the number nine are technical messages not present in FESS.



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- **Maximum size:** the size of the largest message.
- **Mean size:** the average message size considering all messages (i.e. the sum of all message sizes divided by the number of messages).
- **Standard deviation:** the variation around mean (i.e. the squared root of the squared differences between each message size and the mean size).
- **Confidence interval:** with 97% confidence the size of any given message will be between the mean less the interval and the mean more the interval (i.e. 1 message in 33 will not be within the range of [mean ± confidence interval], but it should normally be within the minimum and the maximum sizes).

From Table 1 it can be derived that the confidence interval for the business messages (i.e. not the technical messages beginning with the number nine) is always less than 10% of the mean size, so it is estimated that at least 97% of the messages will be within the interval of the mean size ± 10%.

## 2.2 Estimations Based on Message Size Estimations Based on CS/MISE Statistics

For the rest of the messages an estimated size is provided by calculation and certain assumptions. The calculation follows a bottom-up approach of the functional structure (as defined in Appendix D of the FESS) of each message. Firstly, the Data Items are added of each leaf Data Group and then the result is multiplied by the applicable Data Group repetitions. The process continues through the whole hierarchy summing each time the descendant Data Items and the Data Groups until the root is reached.

For providing a realistic estimation, certain assumptions have been made. For the size of the Data Items it is assumed that:

- If the length of a Data Item is variable (i.e. not fixed), then the size is assumed to be 20% of the full length.
- If the datatype of Data Item is “Date” or “Time”, then 8 bytes are assumed.
- If the datatype of Data Item is “DateTime”, then 19 bytes are assumed.
- If the datatype of Data Item is image or document, then 100 Kbytes ( $100 \times 2^{10}$ ) are assumed.

In addition, towards the size of each Data Item and Data Group it is assumed that a XML starting and ending tag will exist, so it is added to the total size as bytes. For calculating the size of the starting and ending tags, it is assumed that:

- The tag will be the name of the Data Item or Data Group without any spaces or punctuation.
- Five additional characters are considered for the XML markup of the starting and ending tags (i.e. <...><.../>).

The estimated repetitions of the Data Groups have been set on a case-by-case basis.

Finally, for each message an overhead of 1.5 Kbytes (1,536 bytes) is assumed accounting for the application and infrastructure levels overhead (see TESS Section II §2.2 Architectural Levels).

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The detailed calculations for the size estimation of each message are included in the second part of the Appendix A. The final size estimations of each message are summarised in Table 2.

Message	Estimated Size (in bytes)	Message	Estimated Size (in bytes)
IE701	2,111	IE807	2,265
IE702	1,686	IE810	2,012
IE704	1,865	IE813	2,773
IE705	1,879	IE815	9,746
IE709	3,581	IE818	2,807
IE713	21,183	IE819	2,304
IE714	1,686	IE820	2,060
IE717	107,314	IE821	8,264
IE721	106,923	IE825	11,456
IE732	8,539	IE829	2,238
IE733	739,885	IE837	1,845
IE734	1,608	IE838	1,644
IE742	836,813	IE839	3,540
IE770	2,422	IE840	2,991
IE784	1,749	IE861	3,480
IE785	1,769	IE867	2,444
IE801	9,954	IE868	1,844
IE802	2,019	IE869	1,827
IE803	1,896	IE871	2,551

Table 2: Estimations of EMCS Message sizes

For the IE801, IE802, IE810, IE813, IE818, IE829, and IE837 messages, the average size of Table 1 will be considered instead of the estimated sizes of Table 2 as the statistics are considered more reliable.

## 2.3 Message Size Estimations

This paragraph presents the EMCS message size estimations based on CS/MISE Statistics and calculations.

### 2.3.1 IE701. Common request - C\_REQ\_SUB

The statistics from CS/MISE show that only six IE701 messages have been exchanged over the Common Domain and safe conclusions cannot be derived, so the calculated size will be considered. It is assumed that the IE701 concerns an e-AD list request and 1.5 Kbytes of application and infrastructure overhead has been added.

IE701 = 2,111 bytes

### 2.3.2 IE702. Refusal of common request - C\_REQ\_REF

The size of the message is estimated on a single refusal including a 1.5 Kbytes application and infrastructure overhead.

IE702 = 1,686 bytes

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### **2.3.3 IE704. Generic refusal message - N\_REJ\_DAT**

The size of the message is estimated on a single refusal including a 1.5 Kbytes application and infrastructure overhead. The reference to the refused message is considered negligible.

IE704 = 1,865 bytes

### **2.3.4 IE705. External request for reference data - E\_REQ\_SUB**

The size of the message is estimated on the assumption that a code is requested including a 1.5 Kbytes application and infrastructure overhead.

IE705 = 1,879 bytes

### **2.3.5 IE709. Common system parameters - C\_PAR\_DAT**

The size of the message is estimated on the assumption that all data are provided including a 1.5 Kbytes application and infrastructure overhead.

IE709 = 3,581 bytes

### **2.3.6 IE713. Operations on the register of economic operators - C\_QRO\_DAT**

The size of the message is estimated for an incremental update but not for a full reload of the register; the latter occurring in case of recovery only. The size of the incremental update message is estimated on the assumption of an average message made of:

- Five traders,
- Five tax warehouses;
- One temporary authorisation.

An application and infrastructure overhead of 1.5 Kbytes is also included.

IE713 = 21,183 bytes

### **2.3.7 IE714. Refusal of update of economic operators - C\_QRO\_REF**

The size of the message is estimated on a single refusal including a 1.5 Kbytes application and infrastructure overhead.

IE713 = 1,686 bytes

### **2.3.8 IE717. Control report - C\_CCR\_DAT**

The size of the control report is estimated on the assumption most fields are provided with one control, one evidence document including an image attachment, two unsatisfactory reasons, and one body. An application and infrastructure overhead of 1.5 Kbytes is also included.

IE717 = 107,314 bytes

### **2.3.9 IE721. Administrative cooperation common request - C\_COO\_SUB**

The size of the message is estimated on the assumption that almost all fields are provided. The attributes, follow-up and contact Data Groups amount to (102 + 441 + 235) 778 bytes. The history request totals to 288 bytes. The estimation for the administrative cooperation 104,302 includes two ARCs, one trader, one document with image attachment, and one action request.

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In all cases, an application and infrastructure overhead of 1.5 Kbytes is also included.

IE721 for history request =  $(288 + 778 + 1,563) = 2,629$  bytes

IE721 for administrative cooperation =  $(288 + 778 + 104,302) = 105,368$  bytes

### **2.3.10 IE732. Common list of codes - C\_COD\_DAT**

The size of the message is estimated on the assumption that all data are provided including a 1.5 Kbytes application and infrastructure overhead.

IE732 = 4,355 + IE733 = 4,355 + 137,236 = 141,591 bytes

### **2.3.11 IE733. External list of codes - E\_COD\_DAT**

The size of the message is estimated on the assumption that one code with 23 translations for each code list is provided. An application and infrastructure overhead of 1.5 Kbytes is also included.

IE733 = 137,236 bytes

### **2.3.12 IE734. Operations on the reference data base - C\_RDD\_DAT**

The size of the message is estimated on the assumption that all data are provided including a 1.5 Kbytes application and infrastructure overhead.

IE734 = IE709 + IE732 = 3581 + 141591 = 286,763 bytes

### **2.3.13 IE742. SEED statistics - C\_STA\_VAL**

The size of the message is estimated on the assumption that all required fields are provided and that there are 27 Member State statistics. An application and infrastructure overhead of 1.5 Kbytes is also included.

IE742 = 836,813 bytes

### **2.3.14 IE770. Business process unavailability schedule - C\_AVA\_DAT**

The size of the message is estimated on the assumption that all required fields are provided and two actions are provided. An application and infrastructure overhead of 1.5 Kbytes is also included.

IE770 = 2,422 bytes

### **2.3.15 IE784. Movement download request - C\_DOW\_SUB**

This message is estimated on the assumption that all fields are provided. With the addition of 1.5 Kbytes accounting for the application and infrastructure overhead, the estimated size of the message totals to 1,749 bytes. However, this FESS message corresponds to the technical message IE904, so the average size from the statistics will be used instead (see Table 1).

IE784 = 3,485 bytes

### **2.3.16 IE785. Movement download answer - C\_DOW\_RES**

This message is estimated on the assumption that all fields are provided. With the addition of 1.5 Kbytes accounting for the application and infrastructure overhead, the estimated size of the message totals to 1,769 bytes. However, this FESS message corresponds to the technical

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message IE905, so the average size from the statistics will be used instead (see Table 1).

IE785 = 3,161 bytes

### **2.3.17 IE801. e-AD - C\_EAD\_VAL**

The size of the message is estimated on the assumption that all required fields as well as other optional fields are provided. The average number of bodies is estimated to four containing one full package. The size of the messages is estimated to 9,954 bytes, which includes an application and infrastructure overhead of 1.5 Kbytes. However, the average size from the statistics will be used instead (see Table 1).

IE801 = 6,414 bytes

### **2.3.18 IE802. Reminder message for Excise movement - C\_EXC\_REM**

This message is estimated on the assumption that all fields are provided. With the addition of 1.5 Kbytes accounting for the application and infrastructure overhead, the estimated size of the message totals to 2,019 bytes. However, the average size from the statistics will be used instead (see Table 1).

IE802 = 2,529 bytes

### **2.3.19 IE803. Notification of diverted e-AD - C\_EAD\_NOT**

This message is estimated on the assumption that all fields are provided with two downstream ARCs. An application and infrastructure overhead of 1.5 Kbytes is also included.

IE803 = 1,896 bytes

### **2.3.20 IE807. Interruption of movement - C\_STP\_NOT**

The size of the message is estimated on the assumption that all fields are provided with one record of control and event report. An application and infrastructure overhead of 1.5 Kbytes is also included.

IE807 = 2,265 bytes

### **2.3.21 IE810. Cancellation of an e-AD - C\_CAN\_DAT**

The size of the message is estimated on the assumption that all fields are provided including a 1.5 Kbytes application and infrastructure overhead, which totals to 2,012 bytes. However, the average size from the statistics will be used instead (see Table 1).

IE810 = 2,830 bytes

### **2.3.22 IE813. Change of destination - C\_UPD\_DAT**

The size of the message is estimated on the assumption of change of consignee and of transport details resulting to a total of 2,773 bytes including a 1.5 Kbytes application and infrastructure overhead. However, the average size from the statistics will be used instead (see Table 1).

IE813 = 3,262 bytes

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### **2.3.23 IE815. Submitted draft of e-AD - N\_EAD\_SUB**

The size of the submitted e-AD is approximately the same as the size of the corresponding valid e-AD hence, the size of the IE801 will be used (see 2.3.17).

IE815 = 6,414 bytes

### **2.3.24 IE818. Report of receipt/export - C\_DEL\_DAT**

The size of the message is estimated on the assumption that four bodies are provided and application and infrastructure overhead of 1.5 Kbytes is included. The estimation totals to 2,807 bytes, but the average size from the statistics will be used instead (see Table 1).

IE818 = 2,498 bytes

### **2.3.25 IE819. Alert or rejection of an e-AD - C\_REJ\_DAT**

The size of the message is estimated on the assumption that all required fields are provided and two reasons of alert or rejection are provided. An application and infrastructure overhead of 1.5 Kbytes is also included.

IE819 = 2,304 bytes

### **2.3.26 IE820. History results - C\_HIM\_RES**

The size of the message is estimated on the assumption that most fields are provided with one IE721 C\_COO\_SUB (see 2.3.9) and one IE867 C\_COO\_RES (see 2.3.35). An application and infrastructure overhead of 1.5 Kbytes is also included.

IE820 = 2,304 + IE721 + IE867 = 2,304 + 2,629 + 3,480 = 8,413 bytes

### **2.3.27 IE821. List of e-AD as result of a general query - C\_LST\_VAL**

The size of the message is estimated on the assumption that all required fields are provided and five list items are provided. The estimation included an application and infrastructure overhead of 1.5 Kbytes. Although statistical data currently exist, the sample is considered small to derive safe conclusion hence, the estimation will be used.

IE821 = 8,264 bytes

### **2.3.28 IE825. Submitted draft of splitting operation - E\_SPL\_SUB**

The size of the message is estimated on the assumption most fields are provided with two split details, two transport details, and two bodies. An application and infrastructure overhead of 1.5 Kbytes is also included.

IE825 = 11,456 bytes

### **2.3.29 IE829. Notification of accepted export - C\_EXP\_NOT**

The size of the message is estimated on the assumption that all required fields are provided, it concerns one movement, and application and infrastructure overhead of 1.5 Kbytes is included. The estimation totals to 2,238 bytes, but the average size from the statistics will be used instead (see Table 1).

IE837 = 4,298 bytes

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### **2.3.30 IE837. Explanation on delay for delivery - C\_DEL\_EXP**

The size of the message is estimated on the assumption that all required fields are provided including an application and infrastructure overhead of 1.5 Kbytes. The estimation totals to 1,845 bytes, but the average size from the statistics will be used instead (see Table 1).

IE837 = 1,587 bytes

### **2.3.31 IE838. History of a movement - C\_HIS\_VAL**

This FESS message corresponds to the technical message IE934, so the average size from the statistics will be used (see Table 1) instead of the estimated size of 1,644 bytes .

IE820 = 16,413 bytes

### **2.3.32 IE839. Customs rejection of e-AD - C\_CUS\_REJ**

The size of the message is estimated on the assumption that all required fields are provided and an average of ten diagnosis are provided. The size of the N\_EAD\_SUB or C\_EAD\_VAL references is not included. An application and infrastructure overhead of 1.5 Kbytes is also included. Although statistical data currently exist, the sample is considered small to derive safe conclusion hence, the estimation will be used.

IE840 = 3,540 bytes

### **2.3.33 IE840. Event report - C\_EVT\_DAT**

The size of the message is estimated on the assumption that all required fields are provided and an average of two transport details and two bodies are provided. An application and infrastructure overhead of 1.5 Kbytes is also included.

IE840 = 2,991 bytes

### **2.3.34 IE861. Basis for recovery of duties - C\_RES\_DAT**

This message concerns basis for recovery of duties. The size of the message is estimated on the assumption that all required fields are provided and an average of two body records, two report references, and two document evidences are provided. An application and infrastructure overhead of 1.5 Kbytes is also included.

IE861 = 3,480 bytes

### **2.3.35 IE867. Administrative cooperation results - C\_COO\_RES**

The size of the message is estimated on the assumption that all required fields are provided and an average of two results and two document references are provided. An application and infrastructure overhead of 1.5 Kbytes is also included.

IE871 = 2,444 bytes

### **2.3.36 IE868. Answer message - C\_COO\_ANS**

The size of the message is estimated on the assumption that all required fields are provided including an application and infrastructure overhead of 1.5 Kbytes.

IE868 = 1,844 bytes

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**2.3.37 IE869. Reminder message for administrative cooperation - C\_COO\_REM**

The size of the message is estimated on the assumption that all required fields are provided including an application and infrastructure overhead of 1.5 Kbytes.

IE869 = 1,827 bytes

**2.3.38 IE871. Explanation on reason for shortage - C\_SHR\_EXP**

The size of the message is estimated on the assumption that all required fields are provided and an average of two body records are provided. An application and infrastructure overhead of 1.5 Kbytes is also included.

IE871 = 2,551 bytes



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### 3 Volumes Evaluation

This chapter provides the estimations for the EMCS traffic and serves as guidance to the MSAs in evaluating the amount of resources necessary for implementing their National Excise Application (NEA).

#### 3.1 Significant Subset of Evaluation

A sensible representation of the EMCS traffic is considered based on the following assumptions.

##### 3.1.1 SEED and Reference Data

Reference Data are small in volume and should not change very frequently. The associated traffic is therefore considered as negligible compared to the rest of the system.

The SEED traffic is significant due to the frequency of updates and not to the number of records in the databases. SEED V0 statistics give a reliable estimate of the traffic, providing number of economic operators for each MSA as well as number of updates; SEED V1 may be anticipated to have almost the same volume of exchanges.

##### 3.1.2 Movement Data

Statistics and estimates about the EMCS traffic were submitted by MSA on June 2006. A method to evaluate that information and subsequently evaluate the number of exchanged messages is proposed in Chapter 2 and a raw evaluation of the total amount exchanged is provided in paragraph 3.4.3 below.

#### 3.2 Number of Exchanged Messages

The proposed process is based on statistics and estimates submitted by MSA as well as on the following rules.

##### 3.2.1 Per-MSA Numbers

It must be noted that a difference appears in figures provided by MSA between the total numbers of sent and received e-ADs (about 12%). This is probably due to the fact that some MSA provided estimates rather than real statistical data. In the following table, this issue is managed through RADJ that provides an adjustment of figures before applying subsequent rules, only for MSA which provided estimates. This adjustment should disappear as soon as all MSA will provide real statistical data.

Message exchanges with so called “Interested MSA” are not taken into account in the described process.

	<b>Definition</b>	<b>Evaluation mode</b>
SAAD	Number of e-ADs sent by of the considered MSA (MSA of Dispatch).	Directly copied from the data sheet (number of intra EU movements sent to other MS) provided by each MSA.
SEXP	Number of e-ADs for export of which the considered MSA is the MSA of Dispatch.	Directly copied from the data sheet (number of intra EU movements sent for export) provided by each MSA.

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	<b>Definition</b>	<b>Evaluation mode</b>
TSAAD	Total number of e-ADs submitted by the concerned MSA.	For each MSA, sum SAAD and SEXP.
RAAD	Number of e-ADs of which the considered MSA is the MSA of Destination.	Directly copied from the data sheet (number of intra EU movements received from other MS) provided by each MSA.
RADJ	Additional Number (adjustment) of e-ADs received by the concerned MSA according to the adjustment calculated for the difference in estimates between the totals of submitted and received e-ADs.	For each MSA having <u>estimated</u> their traffic, the proportional difference according to RAAD.
TRAAD	Total number of e-ADs received by the concerned MSA.	For each MSA, sum RAAD and RADJ.
SCAN	Number of cancellation of which the considered MSA is the MSA of Dispatch.	For each MSA, apply to SAAD the percentage of AADs where a cancellation was done. Such information is currently not available. Consequently, we provisionally estimate the percentage to 1%.
RCAN	Number of cancellation of which the considered MSA is the MSA of Destination.	For each MSA, apply to RAAD the percentage of AADs where a cancellation was done. Such information is currently not available. Consequently, we provisionally estimate the percentage to 1% according to SCAN.
STAAD	Number of not cancelled e-ADs submitted by the concerned MSA.	For each MSA, TSAAD – SCAN.
RTAAD	Number of not cancelled e-ADs received by the concerned MSA.	For each MSA, TRAAD - RCAN.
SCOD1	Number of changes of destination submitted in the concerned MSA (MSA of dispatch) where the MSA Destination is unchanged.	For each MSA, apply to STAAD the percentage of ADs where a change of destination was done without change of the former MSA of Destination. Such information is currently not available. Consequently, we provisionally estimate the percentage to 1%.
RCOD1	Number of changes of destination received in the concerned MSA (MSA of Destination) where the MSA is unchanged.	For each MSA, apply to RTAAD the percentage of ADs where a change of destination was received without change of the former MSA of Destination. Such information is currently not available. Consequently, we provisionally estimate the percentage to 1%.

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	<b>Definition</b>	<b>Evaluation mode</b>
SCOD2	Number of changes of destination submitted in the concerned MSA (MSA of Dispatch) where the MSA Destination is changed.	For each MSA, apply to STAAD the percentage of ADs where a change of destination was done with change of the former MSA of Destination. Such information is currently not available. Consequently, we provisionally estimate the percentage to 0.5%.
RCOD2	Number of changes of destination received in the concerned MSA (MSA of Destination) where the MSA is changed.	For each MSA, apply to RTAAD the percentage of ADs where a change of destination was received with change of the former MSA of Destination. Such information is currently not available. Consequently, we provisionally estimate the percentage to 0.5%.
SSHR	Number of e-ADs where shortages were detected and for which the concerned MSA is the MSA of Dispatch.	For each MSA, apply to SAAD the percentage of ADs where shortages were detected. Such information is currently not available. Consequently, we provisionally estimate the percentage to 1%.
RSHR	Number of e-ADs where shortages were detected in the concerned MSA (of destination).	For the each MSA, apply to RAAD the percentage of ADs where shortages were detected. Such information is currently not available. Consequently, we provisionally estimate the percentage to 1%.
SCTR	Number of control reports issued for e-AD where the considered MSA is the MSA of Dispatch.	For each MSA, apply to STAAD the percentage of e-ADs submitted by the concerned MSA and where a control report was recorded. Such information is currently not available. Consequently, we provisionally estimate the percentage to 0.5%.
RCTR	Number of control reports issued for e-AD where the considered MSA is the MSA of Destination.	For the each MSA, apply to RTAAD the percentage of e-ADs where a control report was recorded. Such information is currently not available. Consequently, we provisionally estimate the percentage to 0.5%.
NSEED	Total number of Economic Operators plus tax warehouses for the concerned MSA.	Directly copied from the SEED V0 data sheet (number of economic operators) provided by the FITS/TC and published on CIRCA.

Table 3: Volumes Estimates – Per-MSA numbers

### 3.2.2 Total Numbers

	<b>Definition</b>	<b>Evaluation mode</b>
TAAD	Total number of e-ADs submitted throughout EMCS.	Sum of TSAAD for all MSAs.

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	<b>Definition</b>	<b>Evaluation mode</b>
TTAAD	Total number of not cancelled e-ADs submitted throughout EMCS.	Sum of STAAD for all MSAs.
TCOD	Total number of e-ADs where a change of destination was done throughout EMCS.	Sum of SCOD1 and SCOD2 for all MSAs.
TCTR	Total number of control reports issued throughout EMCS.	Sum of SCTR and RCTR for all MSAs.
TSEED	Total number of Economic Operators plus tax warehouses in SEED.	Sum of NSEED for all MSAs.

Table 4: Volumes Estimates – Total Numbers

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### 3.3 Scenarios

The following scenarios are presented from the point of view of a MSA. Evaluation formulas calculate the traffic per year.

It is important to note that *most rules explained below are pure assumptions* that are believed to be sensible in the absence of more precise analysis of the actual AD information.

#### 3.3.1 SEED Updates

According to the analysis of the SEEDV0 statistics for Q4 2006, we shall consider that 10% of Economic Operators or warehouses are subject to an update per year.

Estimated exchanges	
Received from Economic Operators	None
Sent to Economic Operators	None
Received from MSAs	None
Sent to MSAs	None
Received from Common Domain	$TSEED * IE713 * 0.1$
Sent to Common Domain	$NSEED * IE713 * 0.1$

Table 5: SEED Updates - Estimated exchanges

#### 3.3.2 Standard Movement

Estimated exchanges	
Received from Economic Operators	$TSAAD * IE815 + SCAN * IE810 + RTAAD * IE818$
Sent to Economic Operators	$TSAAD * IE801 + TRAAD * IE801 + SCAN * IE810 + RCAN * IE810 + RTAAD * IE818 + STAAD * IE818$
Received from MSAs	$TRAAD * IE801 + RCAN * IE810 + STAAD * IE818$
Sent to MSAs	$TSAAD * IE801 + SCAN + IE810 + RTAAD * IE818$

Table 6: Standard Movement - Estimated exchanges

#### 3.3.3 Change of Destination

Due to lack of more precise information, we shall consider that:

- The MSA of Destination changes half the time;
- The consignee always changes;
- The number of cases where a given MSA is "former" MSA of Destination is equal to the number of cases where it is the "new" MSA of Destination.

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<b>Estimated exchanges</b>	
Received from Economic Operators	$(SCOD1 + SCOD2) * IE813$
Sent to Economic Operators	$(SCOD1 + SCOD2) * IE813 + (RCOD1 + RCOD2) * IE803 + RCOD1 * IE801$
Received from MSAs	$(RCOD1 + RCOD2) * IE813 + RCOD2 * IE838$
Sent to MSAs	$(SCOD1 + SCOD2) * IE813 + SCOD2 * IE838$

Table 7: Change of Destination - Estimated Exchanges

### 3.3.4 Post-delivery processing

We shall consider that the consignor will send explanations nine out of ten times and the consignee consignor will send explanations three of ten times.

<b>Estimated exchanges</b>	
Received from Economic Operators	$(0.9 * SSHR + 0.3 * RSHR) * IE871$
Sent to Economic Operators	$SSHR * IE861$
Received from MSAs	$0.9 * RSHR * IE871 + SSHR * IE861$
Sent to MSAs	$0.9 * SSHR * IE871 + RSHR * IE861$

Table 8: Processing of Shortages - Estimated Exchanges

### 3.3.5 Road Control

We shall consider that control reports are produced and submitted by:

- 25%: the MSA of Dispatch
- 25%: the MSA of Destination
- 50%: A third MSA (MSA of Control)

We shall consider that only one copy of the electronic control report is sent.

<b>Estimated exchanges</b>	
Received from Economic Operators	None
Sent to Economic Operators	None
Received from MSAs	$(SCTR + RCTR) * IE717 * 0.75$
Sent to MSAs	$(SCTR + RCTR) * IE717 * 0.25$

Table 9: Road Control - Estimated Exchanges

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### 3.4 Raw Estimate of Volumes

Most of following tables are divided in two parts, one with MSA which provided real statistical data and one with MSA which provided estimates.

#### 3.4.1 Intermediate numbers

Following table provide calculation of figures according to Table 3 §3.2.1.

Based on MSA Statistics

	BE	CY	CZ	DE	ES	GR	HU	LT	LU	LV	MT	PT	SI	SK
SAAD	359,456	278	38,270	153,548	178,921	9,592	19,310	14,587	10,812	6,934	385	40,015	2,586	294
SEXP	26,398	0	1,360	78,899	132,029	197	18,793	480	13	2,477	0	7,234	39	0
TSAAD	385,854	278	39,630	232,447	310,950	9,789	38,103	15,067	10,825	9,411	385	47,249	2,625	294
RAAD	405,781	4,107	60,985	432,513	131,414	16,178	11,397	5,083	21,660	15,827	2,759	47,221	21,294	14,193
RADJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TRAAD	405,781	4,107	60,985	432,513	131,414	16,178	11,397	5,083	21,660	15,827	2,759	47,221	21,294	14,193
SCAN	3,859	3	396	2,324	3,110	98	381	151	108	94	4	472	26	3
RCAN	4,058	41	610	4,325	1,314	162	114	51	217	158	28	472	213	142
STAAD	381,995	275	39,234	230,123	307,841	9,691	37,722	14,916	10,717	9,317	381	46,777	2,599	291
RTAAD	401,723	4,066	60,375	428,188	130,100	16,016	11,283	5,032	21,443	15,669	2,731	46,749	21,081	14,051
SCOD1	3,820	3	392	2,301	3,078	97	377	149	107	93	4	468	26	3
RCOD1	4,017	41	604	4,282	1,301	160	113	50	214	157	27	467	211	141
SCOD2	1,910	1	196	1,151	1,539	48	189	75	54	47	2	234	13	1
RCOD2	2,009	20	302	2,141	650	80	56	25	107	78	14	234	105	70
SSHR	3,820	3	392	2,301	3,078	97	377	149	107	93	4	468	26	3
RSHR	4,017	41	604	4,282	1,301	160	113	50	214	157	27	467	211	141
SCTR	1,910	1	196	1,151	1,539	48	189	75	54	47	2	234	13	1
RCTR	2,009	20	302	2,141	650	80	56	25	107	78	14	234	105	70
NSEED	4,273	263	1,695	18,782	12,272	1,015	23,290	329	740	345	492	4,273	321	484

Table 10: Intermediate numbers per MSA profile (statistics)

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Based on MSA Estimates

	AT	BG	DK	EE	FI	FR	IE	IT	NL	PL	SE	UK
SAAD	<i>200,000</i>	5,697	3,400	3,475	7,000	600,000	12,000	<i>200,000</i>	200,000	19,653	6,800	<i>200,000</i>
SEXP	0	12,803	5,600	275	1,000	40,000	1,000	0	0	2,231	0	0
TSAAD	200,000	18,500	9,000	3,750	8,000	640,000	13,000	200,000	200,000	21,884	6,800	200,000
RAAD	200,000	37,255	5,400	8,729	100,000	80,000	35,000	<i>200,000</i>	200,000	83,730	7,600	<i>200,000</i>
RADJ	59,908	11,159	1,618	2,615	29,954	23,963	10,484	59,908	59,908	25,081	2,277	59,908
TRAAD	259,908	48,414	7,018	11,344	129,954	103,963	45,484	259,908	259,908	108,811	9,877	259,908
SCAN	2,000	185	90	38	80	6,400	130	2,000	2,000	219	68	2,000
RCAN	2,599	484	70	113	1,300	1,040	455	2,599	2,599	1,088	99	2,599
STAAD	198,000	18,315	8,910	3,713	7,920	633,600	12,870	198,000	198,000	21,665	6,732	198,000
RTAAD	257,309	47,930	6,947	11,230	128,655	102,924	45,029	257,309	257,309	107,722	9,778	257,309
SCOD1	1,980	183	89	37	79	6,336	129	1,980	1,980	217	67	1,980
RCOD1	2,573	479	69	112	1,287	1,029	450	2,573	2,573	1,077	98	2,573
SCOD2	990	92	45	19	40	3,168	64	990	990	108	34	990
RCOD2	1,287	240	35	56	643	515	225	1,287	1,287	539	49	1,287
SSHR	1,980	183	89	37	79	6,336	129	1,980	1,980	217	67	1,980
RSHR	2,573	479	69	112	1,287	1,029	450	2,573	2,573	1,077	98	2,573
SCTR	990	92	45	19	40	3,168	64	990	990	108	34	990
RCTR	1,287	240	35	56	643	515	225	1,287	1,287	539	49	1,287
NSEED	3,646	2,000	4,013	227	892	58,455	1,274	24,907	2,821	2,744	3,953	4,164

Table 11: Intermediate numbers per MSA profile (estimates)

Note: figures in *italic* are provided as estimates by DG TAXUD because concerned MSA did not provide information.



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### 3.4.2 Total numbers

The total numbers are the following:

TAAD	2.623.841
TTAAD	2.597.603
TCAN	26.238
TCOD	38.964
TCTR	26.328
TSEED	177.670

Table 12: Volumes Estimates – Total numbers

Due to the fact that UTF-8 requires more than 8 bits to store a character, it would be a safe assumption for a Member State that currently uses that codification to assume that the use of UTF-8 is doubling the size of the message. The other Member States should apply an overhead coefficient of 1.1 to take into account their exchanges with these Member States (or any intermediate value if they specifically have more traffic with Greece and Cyprus, and, when they will join the EU, with Bulgaria and Romania).

### 3.4.3 Results

The following tables summarise the raw figures, given in message numbers and sizes according to the scenarios listed in paragraph 3.3 above. These numbers include the application and infrastructure overhead.

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### 3.4.3.1 SEED Updates

	BE	CY	CZ	DE	ES	GR	HU	LT	LU	LV	MT	PT	SI	SK
<b>Received from MSAs</b>														
IE713	17,767	17,767	17,767	17,767	17,767	17,767	17,767	17,767	17,767	17,767	17,767	17,767	17,767	17,767
<b>MB</b>	<b>358.92</b>	<b>358.92</b>	<b>358.92</b>	<b>358.92</b>	<b>358.92</b>	<b>358.92</b>	<b>358.92</b>	<b>358.92</b>	<b>358.92</b>	<b>358.92</b>	<b>358.92</b>	<b>358.92</b>	<b>358.92</b>	<b>358.92</b>
<b>Sent to MSAs</b>														
IE713	427	26	170	1,878	1,227	102	2,329	33	74	35	49	427	32	48
<b>MB</b>	<b>8.63</b>	<b>0.53</b>	<b>3.43</b>	<b>37.94</b>	<b>24.79</b>	<b>2.06</b>	<b>47.05</b>	<b>0.67</b>	<b>1.49</b>	<b>0.71</b>	<b>0.99</b>	<b>8.63</b>	<b>0.65</b>	<b>0.97</b>

Table 13: Volumes Estimates – SEED Updates

	AT	BG	DK	EE	FI	FR	IE	IT	NL	PL	SE	UK
<b>Received from MSAs</b>												
IE713	17,767	17,767	17,767	17,767	17,767	17,767	17,767	17,767	17,767	17,767	17,767	17,767
<b>MB</b>	<b>358.92</b>	<b>358.92</b>	<b>358.92</b>	<b>358.92</b>	<b>358.92</b>	<b>358.92</b>	<b>358.92</b>	<b>358.92</b>	<b>358.92</b>	<b>358.92</b>	<b>358.92</b>	<b>358.92</b>
<b>Sent to MSAs</b>												
IE713	365	200	401	23	89	5,846	127	2,821	3	2,744	3,953	4,164
<b>MB</b>	<b>7.37</b>	<b>4.04</b>	<b>8.10</b>	<b>0.46</b>	<b>1.80</b>	<b>118.10</b>	<b>2.57</b>	<b>56.99</b>	<b>0.06</b>	<b>55.43</b>	<b>79.86</b>	<b>84.12</b>

Table 14: Volumes Estimates – SEED Updates (continue)

<b>DG TAXUD – EXCISE COMPUTERISATION PROJECT</b>	<b>REF: ECP1-ESS-TESS-APP.A1</b>
<b>TESS - APPENDIX A1: EMCS APPLICATIONS SIZING AND VOLUMES ESTIMATES</b>	<b>VERSION: 3.02</b>
<b>VOLUMES EVALUATION</b>	

### 3.4.3.2 Standard Movement

#### Based on MSA Statistics

	BE	CY	CZ	DE	ES	GR	HU	LT	LU	LV	MT	PT	SI	SK
<b>Received from Economic Operators</b>														
IE810	3,859	3	396	2,324	3,110	98	381	151	108	94	4	472	26	3
IE815	385,854	278	39,630	232,447	310,950	9,789	38,103	15,067	10,825	9,411	385	47,249	2,625	294
IE818	401,723	4,066	60,375	428,188	130,100	16,016	11,283	5,032	21,443	15,669	2,731	46,749	21,081	14,051
Nbr.msg	791,436	4,347	100,401	662,959	444,160	25,903	49,767	20,250	32,376	25,174	3,120	94,470	23,732	14,348
<b>MB</b>	<b>3,327.65</b>	<b>11.39</b>	<b>387.31</b>	<b>2,448.18</b>	<b>2,220.37</b>	<b>98.30</b>	<b>260.98</b>	<b>104.56</b>	<b>117.59</b>	<b>95.15</b>	<b>8.87</b>	<b>401.66</b>	<b>66.35</b>	<b>35.28</b>
<b>Sent to Economic Operators</b>														
IE801	791,635	4,385	100,615	664,960	442,364	25,967	49,500	20,150	32,485	25,238	3,144	94,470	23,919	14,487
IE810	7,916	44	1,006	6,650	4,424	260	495	202	325	252	31	945	239	145
IE818	783,719	4,341	99,609	658,310	437,940	25,707	49,005	19,949	32,160	24,986	3,113	93,525	23,680	14,342
Nbr.msg	1,583,270	8,770	201,230	1,329,920	884,728	51,934	99,000	40,301	64,970	50,476	6,288	188,940	47,838	28,974
<b>MB</b>	<b>6,730.73</b>	<b>37.28</b>	<b>855.46</b>	<b>5,653.70</b>	<b>3,761.12</b>	<b>220.78</b>	<b>420.86</b>	<b>171.32</b>	<b>276.20</b>	<b>214.58</b>	<b>26.73</b>	<b>803.21</b>	<b>203.37</b>	<b>123.17</b>
<b>Received from MSAs</b>														
IE801	405,781	4,107	60,985	432,513	131,414	16,178	11,397	5,083	21,660	15,827	2,759	47,221	21,294	14,193
IE810	4,058	41	610	4,325	1,314	162	114	51	217	158	28	472	213	142
IE818	381,995	275	39,234	230,123	307,841	9,691	37,722	14,916	10,717	9,317	381	46,777	2,599	291
Nbr.msg	791,834	4,423	100,829	666,961	440,569	26,031	49,233	20,050	32,594	25,302	3,168	94,470	24,106	14,626
<b>MB</b>	<b>3,403.08</b>	<b>25.89</b>	<b>468.15</b>	<b>3,205.51</b>	<b>1,540.75</b>	<b>122.48</b>	<b>159.89</b>	<b>66.76</b>	<b>158.61</b>	<b>119.43</b>	<b>17.86</b>	<b>401.55</b>	<b>137.02</b>	<b>87.89</b>
<b>Sent to MSAs</b>														
IE801	385,854	278	39,630	232,447	310,950	9,789	38,103	15,067	10,825	9,411	385	47,249	2,625	294
IE810	3,859	3	396	2,324	3,110	98	381	151	108	94	4	472	26	3
IE818	401,723	4,066	60,375	428,188	130,100	16,016	11,283	5,032	21,443	15,669	2,731	46,749	21,081	14,051
Nbr.msg	791,436	4,347	100,401	662,959	444,160	25,903	49,767	20,250	32,376	25,174	3,120	94,470	23,732	14,348
<b>MB</b>	<b>3,327.65</b>	<b>11.39</b>	<b>387.31</b>	<b>2,448.18</b>	<b>2,220.37</b>	<b>98.30</b>	<b>260.98</b>	<b>104.56</b>	<b>117.59</b>	<b>95.15</b>	<b>8.87</b>	<b>401.66</b>	<b>66.35</b>	<b>35.28</b>

Table 15: Volumes Estimates – Standard Movement (statistics)

<b>DG TAXUD – EXCISE COMPUTERISATION PROJECT</b>	<b>REF: ECP1-ESS-TESS-APP.A1</b>
<b>TESS - APPENDIX A1: EMCS APPLICATIONS SIZING AND VOLUMES ESTIMATES</b>	<b>VERSION: 3.02</b>
<b>VOLUMES EVALUATION</b>	

Based on MSA Estimates

	AT	BG	DK	EE	FI	FR	IE	IT	NL	PL	SE	UK
<b>Received from Economic Operators</b>												
IE801	2,000	185	90	38	80	6,400	130	2,000	2,000	219	68	2,000
IE810	200,000	18,500	9,000	3,750	8,000	640,000	13,000	200,000	200,000	21,884	6,800	200,000
IE818	257,309	47,930	6,947	11,230	128,655	102,924	45,029	257,309	257,309	107,722	9,778	257,309
Nbr.msg	459,309	66,615	16,037	15,018	136,735	749,324	58,159	459,309	459,309	129,825	16,646	459,309
<b>MB</b>	<b>1,165.00</b>	<b>165.24</b>	<b>41.39</b>	<b>37.11</b>	<b>328.57</b>	<b>2,011.64</b>	<b>143.15</b>	<b>1,165.00</b>	<b>1,165.00</b>	<b>317.03</b>	<b>42.06</b>	<b>1,165.00</b>
<b>Sent to Economic Operators</b>												
IE801	459,908	66,914	16,018	15,094	137,954	743,963	58,484	459,908	459,908	130,695	16,677	459,908
IE810	4,599	669	160	151	1,380	7,440	585	4,599	4,599	1,307	167	4,599
IE818	455,309	66,245	15,857	14,943	136,575	736,524	57,899	455,309	455,309	129,388	16,510	455,309
Nbr.msg	919,816	133,828	32,035	30,188	275,909	1,487,927	116,968	919,816	919,816	261,390	33,354	919,816
<b>MB</b>	<b>3,910.28</b>	<b>568.92</b>	<b>136.19</b>	<b>128.33</b>	<b>1,172.93</b>	<b>6,325.41</b>	<b>497.25</b>	<b>3,910.28</b>	<b>3,910.28</b>	<b>1,111.21</b>	<b>141.79</b>	<b>3,910.28</b>
<b>Received from MSAs</b>												
IE801	259,908	48,414	7,018	11,344	129,954	103,963	45,484	259,908	259,908	108,811	9,877	259,908
IE810	2,599	484	70	113	1,300	1,040	455	2,599	2,599	1,088	99	2,599
IE818	198,000	18,315	8,910	3,713	7,920	633,600	12,870	198,000	198,000	21,665	6,732	198,000
Nbr.msg	460,507	67,213	15,998	15,170	139,174	738,603	58,809	460,507	460,507	131,564	16,708	460,507
<b>MB</b>	<b>2,068.53</b>	<b>341.08</b>	<b>64.34</b>	<b>78.54</b>	<b>817.29</b>	<b>2,148.15</b>	<b>310.11</b>	<b>2,068.53</b>	<b>2,068.53</b>	<b>720.13</b>	<b>76.72</b>	<b>2,068.53</b>
<b>Sent to MSAs</b>												
IE801	200,000	185	9,000	3,750	8,000	640,000	13,000	200,000	200,000	21,884	6,800	200,000
IE810	2,000	185	90	38	80	6,400	130	2,000	2,000	219	68	2,000
IE818	257,309	47,930	6,947	11,230	128,655	102,924	45,029	257,309	257,309	107,722	9,778	257,309
Nbr.msg	459,309	48,300	16,037	15,018	136,735	749,324	58,159	459,309	459,309	129,825	16,646	459,309
<b>MB</b>	<b>1,841.75</b>	<b>115.81</b>	<b>71.84</b>	<b>49.79</b>	<b>355.64</b>	<b>4,177.26</b>	<b>187.14</b>	<b>1,841.75</b>	<b>1,841.75</b>	<b>391.08</b>	<b>65.07</b>	<b>1,841.75</b>

Table 16: Volumes Estimates – Standard Movement (estimates)

<b>DG TAXUD – EXCISE COMPUTERISATION PROJECT</b>	<b>REF: ECP1-ESS-TESS-APP.A1</b>
<b>TESS - APPENDIX A1: EMCS APPLICATIONS SIZING AND VOLUMES ESTIMATES</b>	<b>VERSION: 3.02</b>
<b>VOLUMES EVALUATION</b>	

### 3.4.3.3 Change of Destination

Based on MSA Statistics

	BE	CY	CZ	DE	ES	GR	HU	LT	LU	LV	MT	PT	SI	SK
<b>Received from Economic Operators</b>														
IE813	5,730	4	589	3,452	4,618	145	566	224	161	140	6	702	39	4
<b>MB</b>	<b>17.83</b>	<b>0.01</b>	<b>1.83</b>	<b>10.74</b>	<b>14.37</b>	<b>0.45</b>	<b>1.76</b>	<b>0.70</b>	<b>0.50</b>	<b>0.44</b>	<b>0.02</b>	<b>2.18</b>	<b>0.12</b>	<b>0.01</b>
<b>Sent to Economic Operators</b>														
IE801	4,017	41	604	4,282	1,301	160	113	50	214	157	27	467	211	141
IE803	6,026	61	906	6,423	1,951	240	169	75	322	235	41	701	316	211
IE813	5,730	4	589	3,452	4,618	145	566	224	161	140	6	702	39	4
Nbrmsg	15,773	106	2,099	14,157	7,870	545	848	349	697	532	74	1,870	566	356
<b>MB</b>	<b>53.29</b>	<b>0.37</b>	<b>7.17</b>	<b>48.55</b>	<b>25.85</b>	<b>1.86</b>	<b>2.76</b>	<b>1.14</b>	<b>2.39</b>	<b>1.82</b>	<b>0.26</b>	<b>6.31</b>	<b>1.98</b>	<b>1.26</b>
<b>Received from MSAs</b>														
IE813	6,026	61	906	6,423	1,951	240	169	75	322	235	41	701	316	211
IE838	2,009	20	302	2,141	650	80	56	25	107	78	14	234	105	70
Nbrmsg	8,035	81	1,208	8,564	2,601	320	225	100	429	313	55	935	421	281
<b>MB</b>	<b>50.19</b>	<b>0.50</b>	<b>7.55</b>	<b>53.49</b>	<b>16.24</b>	<b>2.00</b>	<b>1.40</b>	<b>0.62</b>	<b>2.68</b>	<b>1.95</b>	<b>0.35</b>	<b>5.84</b>	<b>2.63</b>	<b>1.75</b>
<b>Sent to MSAs</b>														
IE813	5,730	4	589	3,452	4,618	145	566	224	161	140	6	702	39	4
IE838	1,910	1	196	1,151	1,539	48	189	75	54	47	2	234	13	1
Nbrmsg	7,640	5	785	4,603	6,157	193	755	299	215	187	8	936	52	5
<b>MB</b>	<b>47.72</b>	<b>0.03</b>	<b>4.90</b>	<b>28.75</b>	<b>38.46</b>	<b>1.20</b>	<b>4.72</b>	<b>1.87</b>	<b>1.35</b>	<b>1.17</b>	<b>0.05</b>	<b>5.85</b>	<b>0.32</b>	<b>0.03</b>

Table 17: Volumes Estimates – Change of Destination (statistics)

<b>DG TAXUD – EXCISE COMPUTERISATION PROJECT</b>	<b>REF: ECP1-ESS-TESS-APP.A1</b>
<b>TESS - APPENDIX A1: EMCS APPLICATIONS SIZING AND VOLUMES ESTIMATES</b>	<b>VERSION: 3.02</b>
<b>VOLUMES EVALUATION</b>	

Based on MSA Estimates

	AT	BG	DK	EE	FI	FR	IE	IT	NL	PL	SE	UK
<b>Received from Economic Operators</b>												
IE813	2,970	275	134	56	119	9,504	193	2,970	2,970	325	101	2,970
<b>MB</b>	<b>9.24</b>	<b>0.86</b>	<b>0.42</b>	<b>0.17</b>	<b>0.37</b>	<b>29.57</b>	<b>0.60</b>	<b>9.24</b>	<b>9.24</b>	<b>1.01</b>	<b>0.31</b>	<b>9.24</b>
<b>Sent to Economic Operators</b>												
IE801	2,573	479	69	112	1,287	1,029	450	2,573	2,573	1,077	98	2,573
IE803	3,860	719	104	168	1,930	1,544	675	3,860	3,860	1,616	147	3,860
IE813	2,970	275	134	56	119	9,504	193	2,970	2,970	325	101	2,970
Nbrmsg	9,403	1,473	307	336	3,336	12,077	1,318	9,403	9,403	3,018	346	9,403
<b>MB</b>	<b>31.96</b>	<b>5.09</b>	<b>1.03</b>	<b>1.16</b>	<b>11.73</b>	<b>38.65</b>	<b>4.57</b>	<b>31.96</b>	<b>31.96</b>	<b>10.52</b>	<b>1.18</b>	<b>31.96</b>
<b>Received from MSAs</b>												
IE813	3,860	719	104	168	1,930	1,544	675	3,860	3,860	1,616	147	3,860
IE838	1,287	240	35	56	643	515	225	1,287	1,287	539	49	1,287
Nbrmsg	5,147	959	139	224	2,573	2,059	900	5,147	5,147	2,155	196	5,147
<b>MB</b>	<b>32.15</b>	<b>5.99</b>	<b>0.87</b>	<b>1.40</b>	<b>16.07</b>	<b>12.86</b>	<b>5.62</b>	<b>32.15</b>	<b>32.15</b>	<b>13.46</b>	<b>1.22</b>	<b>32.15</b>
<b>Sent to MSAs</b>												
IE813	2,970	275	134	56	119	9,504	193	2,970	2,970	325	101	2,970
IE838	990	92	45	19	40	3,168	64	990	990	108	34	990
Nbrmsg	3,960	367	179	75	159	12,672	257	3,960	3,960	433	135	3,960
<b>MB</b>	<b>24.74</b>	<b>2.30</b>	<b>1.12</b>	<b>0.47</b>	<b>1.00</b>	<b>79.15</b>	<b>1.60</b>	<b>24.74</b>	<b>24.74</b>	<b>2.70</b>	<b>0.85</b>	<b>24.74</b>

Table 18: Volumes Estimates – Change of Destination (estimates)

<b>DG TAXUD – EXCISE COMPUTERISATION PROJECT</b>	<b>REF: ECP1-ESS-TESS-APP.A1</b>
<b>TESS - APPENDIX A1: EMCS APPLICATIONS SIZING AND VOLUMES ESTIMATES</b>	<b>VERSION: 3.02</b>
<b>VOLUMES EVALUATION</b>	

### 3.4.3.4 Post-delivery processing

Based on MSA Statistics

	BE	CY	CZ	DE	ES	GR	HU	LT	LU	LV	MT	PT	SI	SK
<b>Received from Economic Operators</b>														
IE871	3,840	7	413	2,499	2,901	103	351	139	118	100	6	468	44	17
<b>MB</b>	<b>9.34</b>	<b>0.02</b>	<b>1.00</b>	<b>6.08</b>	<b>7.06</b>	<b>0.25</b>	<b>0.85</b>	<b>0.34</b>	<b>0.29</b>	<b>0.24</b>	<b>0.01</b>	<b>1.14</b>	<b>0.11</b>	<b>0.04</b>
<b>Sent to Economic Operators</b>														
IE861	3,820	3	392	2,301	3,078	97	377	149	107	93	4	468	26	3
<b>MB</b>	<b>12.68</b>	<b>0.01</b>	<b>1.30</b>	<b>7.64</b>	<b>10.22</b>	<b>0.32</b>	<b>1.25</b>	<b>0.49</b>	<b>0.36</b>	<b>0.31</b>	<b>0.01</b>	<b>1.55</b>	<b>0.09</b>	<b>0.01</b>
<b>Received from MSAs</b>														
IE861	3,820	3	392	2,301	3,078	97	377	149	107	93	4	468	26	3
IE871	3,616	37	543	3,854	1,171	144	102	45	193	141	25	421	190	126
Nbrmsg	7,436	40	935	6,155	4,249	241	479	194	300	234	29	889	216	129
<b>MB</b>	<b>21.47</b>	<b>0.10</b>	<b>2.62</b>	<b>17.01</b>	<b>13.06</b>	<b>0.67</b>	<b>1.50</b>	<b>0.60</b>	<b>0.82</b>	<b>0.65</b>	<b>0.07</b>	<b>2.58</b>	<b>0.55</b>	<b>0.32</b>
<b>Sent to MSAs</b>														
IE861	4,017	41	604	4,282	1,301	160	113	50	214	157	27	467	211	141
IE871	3,438	2	353	2,071	2,771	87	339	134	96	84	3	421	23	3
Nbrmsg	7,455	43	957	6,353	4,072	247	452	184	310	241	30	888	234	144
<b>MB</b>	<b>21.70</b>	<b>0.14</b>	<b>2.86</b>	<b>19.25</b>	<b>11.06</b>	<b>0.74</b>	<b>1.20</b>	<b>0.49</b>	<b>0.94</b>	<b>0.73</b>	<b>0.10</b>	<b>2.57</b>	<b>0.76</b>	<b>0.48</b>

Table 19: Volumes Estimates – Post-delivery processing (statistics)

<b>DG TAXUD – EXCISE COMPUTERISATION PROJECT</b>	<b>REF: ECP1-ESS-TESS-APP.A1</b>
<b>TESS - APPENDIX A1: EMCS APPLICATIONS SIZING AND VOLUMES ESTIMATES</b>	<b>VERSION: 3.02</b>
<b>VOLUMES EVALUATION</b>	

Based on MSA Estimates

	AT	BG	DK	EE	FI	FR	IE	IT	NL	PL	SE	UK
<b>Received from Economic Operators</b>												
IE871	2,039	213	87	45	200	5,805	161	2,039	2,039	303	70	2,039
<b>MB</b>	<b>4.96</b>	<b>0.52</b>	<b>0.21</b>	<b>0.11</b>	<b>0.49</b>	<b>14.12</b>	<b>0.39</b>	<b>4.96</b>	<b>4.96</b>	<b>0.74</b>	<b>0.17</b>	<b>4.96</b>
<b>Sent to Economic Operators</b>												
IE861	1,980	183	89	37	79	6,336	129	1,980	1,980	217	67	1,980
<b>MB</b>	<b>6.57</b>	<b>0.61</b>	<b>0.30</b>	<b>0.12</b>	<b>0.26</b>	<b>21.03</b>	<b>0.43</b>	<b>6.57</b>	<b>6.57</b>	<b>0.72</b>	<b>0.22</b>	<b>6.57</b>
<b>Received from MSAs</b>												
IE861	1,980	183	89	37	79	6,336	129	1,980	1,980	217	67	1,980
IE871	2,316	431	63	101	1,158	926	405	2,316	2,316	970	88	2,316
Nbrmsg	4,296	614	152	138	1,237	7,262	534	4,296	4,296	1,187	155	4,296
<b>MB</b>	<b>12.21</b>	<b>1.66</b>	<b>0.45</b>	<b>0.37</b>	<b>3.08</b>	<b>23.28</b>	<b>1.41</b>	<b>12.21</b>	<b>12.21</b>	<b>3.08</b>	<b>0.44</b>	<b>12.21</b>
<b>Sent to MSAs</b>												
IE861	2,573	479	69	112	1,287	1,029	450	2,573	2,573	1,077	98	2,573
IE871	1,782	165	80	33	71	5,702	116	1,782	1,782	195	61	1,782
Nbrmsg	4,355	644	149	145	1,358	6,731	566	4,355	4,355	1,272	159	4,355
<b>MB</b>	<b>12.87</b>	<b>1.99</b>	<b>0.42</b>	<b>0.45</b>	<b>4.44</b>	<b>17.29</b>	<b>1.78</b>	<b>12.87</b>	<b>12.87</b>	<b>4.05</b>	<b>0.47</b>	<b>12.87</b>

Table 20: Volumes Estimates – Post-delivery processing (estimates)



<b>DG TAXUD – EXCISE COMPUTERISATION PROJECT</b>	<b>REF: ECP1-ESS-TESS-APP.A1</b>
<b>TESS - APPENDIX A1: EMCS APPLICATIONS SIZING AND VOLUMES ESTIMATES</b>	<b>VERSION: 3.02</b>
<b>VOLUMES EVALUATION</b>	

### 3.4.3.5 Road Control

#### Based on MSA Statistics

	BE	CY	CZ	DE	ES	GR	HU	LT	LU	LV	MT	PT	SI	SK
<b>Received from MSAs</b>														
IE717	2,939	16	374	2,469	1,642	96	184	75	121	94	12	351	89	54
<b>MB</b>	<b>300.78</b>	<b>1.64</b>	<b>38.28</b>	<b>252.68</b>	<b>168.05</b>	<b>9.82</b>	<b>18.83</b>	<b>7.68</b>	<b>12.38</b>	<b>9.62</b>	<b>1.23</b>	<b>35.92</b>	<b>9.11</b>	<b>5.53</b>
<b>Sent to MSAs</b>														
IE717	980	5	125	823	547	32	61	25	40	31	4	117	30	18
<b>MB</b>	<b>100.30</b>	<b>0.51</b>	<b>12.79</b>	<b>84.23</b>	<b>55.98</b>	<b>3.27</b>	<b>6.24</b>	<b>2.56</b>	<b>4.09</b>	<b>3.17</b>	<b>0.41</b>	<b>11.97</b>	<b>3.07</b>	<b>1.84</b>

Table 21: Volumes Estimates – Road Control (statistics)

#### Based on MSA Estimates

	AT	BG	DK	EE	FI	FR	IE	IT	NL	PL	SE	UK
<b>Received from MSAs</b>												
IE717	1,707	248	59	56	512	2,762	217	1,707	1,707	485	62	1,707
<b>MB</b>	<b>174.70</b>	<b>25.38</b>	<b>6.04</b>	<b>5.73</b>	<b>52.40</b>	<b>282.67</b>	<b>22.21</b>	<b>174.70</b>	<b>174.70</b>	<b>49.64</b>	<b>6.35</b>	<b>174.70</b>
<b>Sent to MSAs</b>												
IE717	569	83	20	19	171	921	72	569	569	162	21	569
<b>MB</b>	<b>58.23</b>	<b>8.49</b>	<b>2.05</b>	<b>1.94</b>	<b>17.50</b>	<b>94.26</b>	<b>7.37</b>	<b>58.23</b>	<b>58.23</b>	<b>16.58</b>	<b>2.15</b>	<b>58.23</b>

Table 22: Volumes Estimates – Road Control (estimates)

<b>DG TAXUD – EXCISE COMPUTERISATION PROJECT</b>	<b>REF: ECP1-ESS-TESS-APP.A1</b>
<b>TESS - APPENDIX A1: EMCS APPLICATIONS SIZING AND VOLUMES ESTIMATES</b>	<b>VERSION: 3.02</b>
<b>VOLUMES EVALUATION</b>	

### 3.4.3.6 Overall Traffic

The global traffic through the Common Domain is:

- 5,934,530 messages
- **34,591.70 Mbytes (33.78 Tbytes).**

Based on MSA Statistics

	BE	CZ	CY	DE	ES	GR	HU	LT	LU	LV	MT	PT	SI	SK
<b>Received from Economic Operators</b>														
MSG	801,006	4,358	101,403	668,910	451,679	26,151	50,684	20,613	32,655	25,414	3,132	95,640	23,815	14,369
MB	<b>3,354.82</b>	<b>11.42</b>	<b>390.15</b>	<b>2,465.00</b>	<b>2,241.79</b>	<b>99.00</b>	<b>263.59</b>	<b>105.59</b>	<b>118.38</b>	<b>95.83</b>	<b>8.91</b>	<b>404.98</b>	<b>66.58</b>	<b>35.33</b>
<b>Sent to Economic Operators</b>														
MSG	1,602,863	8,879	203,721	1,346,378	895,676	52,576	100,225	40,799	65,774	51,101	6,366	191,278	48,430	29,333
MB	<b>6,796.70</b>	<b>37.67</b>	<b>863.93</b>	<b>5,709.88</b>	<b>3,797.18</b>	<b>222.97</b>	<b>424.87</b>	<b>172.96</b>	<b>278.94</b>	<b>216.71</b>	<b>27.00</b>	<b>811.07</b>	<b>205.44</b>	<b>124.44</b>
<b>Received from MSAs</b>														
MSG	828,011	22,327	121,113	701,916	466,828	44,455	67,888	38,186	51,211	43,710	21,031	114,412	42,599	32,857
MB	<b>4,134.45</b>	<b>387.05</b>	<b>875.52</b>	<b>3,887.63</b>	<b>2,097.03</b>	<b>493.90</b>	<b>540.54</b>	<b>434.59</b>	<b>533.42</b>	<b>490.58</b>	<b>378.43</b>	<b>804.82</b>	<b>508.23</b>	<b>454.41</b>
<b>Sent to MSAs</b>														
MSG	807,938	4,426	102,438	676,616	456,163	26,477	53,364	20,791	33,015	25,668	3,211	96,838	24,080	14,563
MB	<b>3,505.99</b>	<b>12.60</b>	<b>411.30</b>	<b>2,618.35</b>	<b>2,350.65</b>	<b>105.58</b>	<b>320.19</b>	<b>110.15</b>	<b>125.47</b>	<b>100.92</b>	<b>10.42</b>	<b>430.68</b>	<b>71.15</b>	<b>38.60</b>

Table 23: Volumes Estimates – Overall Traffic (statistics)

<b>DG TAXUD – EXCISE COMPUTERISATION PROJECT</b>	<b>REF: ECP1-ESS-TESS-APP.A1</b>
<b>TESS - APPENDIX A1: EMCS APPLICATIONS SIZING AND VOLUMES ESTIMATES</b>	<b>VERSION: 3.02</b>
<b>VOLUMES EVALUATION</b>	

Based on MSA Estimates

	AT	BG	DK	EE	FI	FR	IE	IT	NL	PL	SE	UK
<b>Received from Economic Operators</b>												
MSG	464,318	67,103	16,258	15,119	137,054	764,633	58,513	464,318	464,318	130,453	16,817	464,318
<b>MB</b>	<b>1,179.19</b>	<b>166.62</b>	<b>42.02</b>	<b>37.39</b>	<b>329.43</b>	<b>2,055.32</b>	<b>144.14</b>	<b>1,179.19</b>	<b>1,179.19</b>	<b>318.77</b>	<b>42.55</b>	<b>1,179.19</b>
<b>Sent to Economic Operators</b>												
MSG	931,199	135,484	32,431	30,561	279,324	1,506,340	118,415	931,199	931,199	264,625	33,767	931,199
<b>MB</b>	<b>3,948.81</b>	<b>574.62</b>	<b>137.51</b>	<b>129.62</b>	<b>1,184.92</b>	<b>6,385.09</b>	<b>502.25</b>	<b>3,948.81</b>	<b>3,948.81</b>	<b>1,122.45</b>	<b>143.19</b>	<b>3,948.81</b>
<b>Received from MSAs</b>												
MSG	493,680	87,315	34,283	33,467	162,026	778,471	78,645	493,680	493,680	154,021	35,038	493,680
<b>MB</b>	<b>2,646.31</b>	<b>732.13</b>	<b>430.78</b>	<b>444.73</b>	<b>1,243.42</b>	<b>2,851.67</b>	<b>697.23</b>	<b>2,646.31</b>	<b>2,646.31</b>	<b>1,142.29</b>	<b>443.61</b>	<b>2,646.31</b>
<b>Sent to MSAs</b>												
MSG	468,558	49,594	16,786	15,280	138,512	775,494	59,181	471,014	468,196	134,436	20,914	472,357
<b>MB</b>	<b>1,944.97</b>	<b>132.63</b>	<b>83.54</b>	<b>53.13</b>	<b>380.38</b>	<b>4,486.06</b>	<b>200.45</b>	<b>1,994.58</b>	<b>1,937.65</b>	<b>469.84</b>	<b>148.40</b>	<b>2,021.72</b>

Table 24: Volumes Estimates – Overall Traffic (estimates)

<b>DG TAXUD – EXCISE COMPUTERISATION PROJECT</b>	<b>REF: ECP1-ESS-TESS-APP.A1</b>
<b>TESS - APPENDIX A1: EMCS APPLICATIONS SIZING AND VOLUMES ESTIMATES</b>	<b>VERSION: 3.02</b>
<b>VOLUMES EVALUATION</b>	

End of TESS Appendix A