

# **Termination rates at European level**

**July 2015**

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## 1. Executive Summary

This document is an updated version of the benchmark of fixed and mobile Termination Rates (TRs) across Europe prepared by the BEREC Benchmarking Expert Working Group in cooperation with the BEREC Remedies Expert Working Group and the BEREC Office and aims to offer a picture of the regulated rates for fixed and mobile interconnection services in Europe. Fixed and mobile termination services in Europe are subject to price regulation.

The European Commission Recommendation on relevant product and service markets 2014 identifies:

- call termination on individual public telephone networks provided at a fixed location as a relevant market susceptible of ex-ante regulation (market 1)
- wholesale voice call termination on individual mobile networks as a relevant market susceptible of ex-ante regulation (market 2).

Because of the structure of these two markets, in general each network operator has an SMP position (i.e. a monopoly) for termination on its own network and therefore its termination rates are regulated.

The present overview of TRs is based upon the results of a request for information sent to all NRAs in July 2015, referring – if not differently indicated – to data as of 1st July 2015. It includes rates from the thirty six (36) NRAs<sup>1</sup> that provided responses to our request.

As of July 2015, this is the situation regarding TRs in Europe:

- The FTR simple average of incumbents at the European level stands at 0.31 eurocents per minute for Layer 1. The average for Layer 2 stands at 0.49 and for Layer 3 at 0.45 eurocents per minute.
- The FTR simple average of European Union incumbents operating at Layer 1 stands at 0.27 eurocents per minute. The average for Layer 2 stands at 0.23 and for Layer 3 at 0.38 eurocents per minute.

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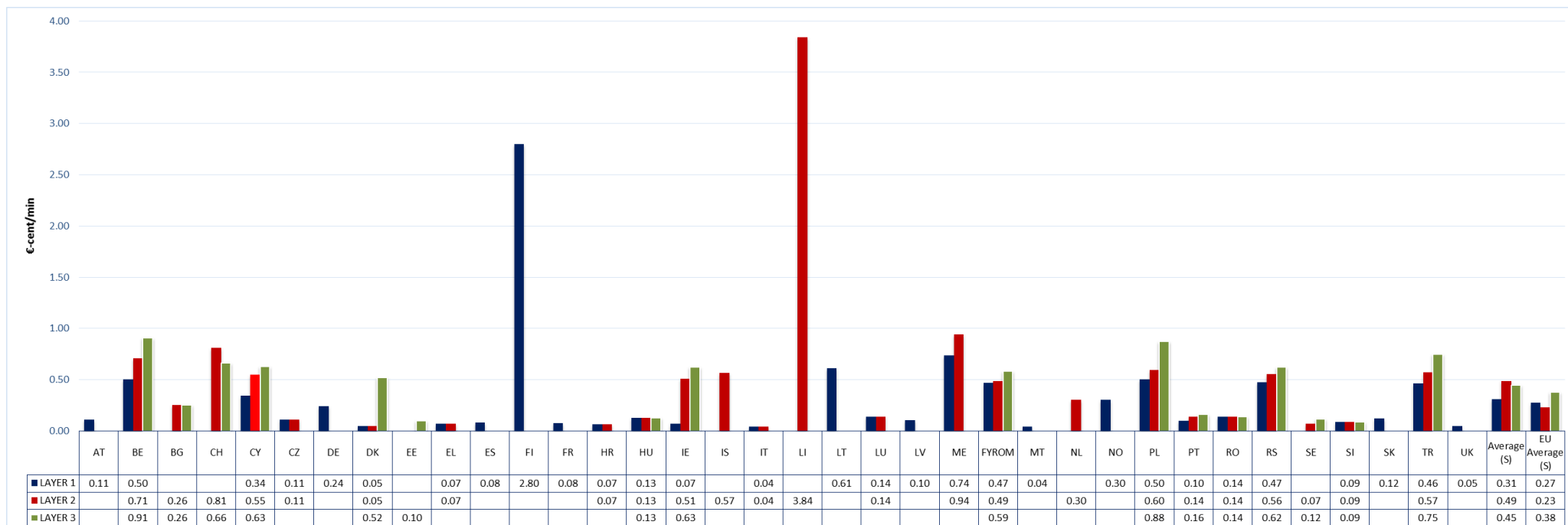
<sup>1</sup> 28 EU member states plus 4 EFTA states (Switzerland, Iceland, Norway and Liechtenstein) and 4 candidate states Montenegro, FYROM, Serbia and Turkey.

- The MTR simple average (A(s)) at the European level (all 36 countries) stands at 1.52 eurocents per minute, whereas the weighted average (A(w)) at European level is estimated at 1.22 eurocents per minute.
- The MTR A(s) at the EU level (only EU member states) stands at 1.13 eurocents per minute, whereas A(w) at EU level is estimated at 1.14 eurocents per minute.
- The domestic SMS TR A(s) at the European level is 2.59 eurocents per SMS, whereas A(w) is reported to be 2.29 eurocents per SMS.
- Since not all EU member states report their SMS TR, no averages at the EU level could be calculated.

For non-euro countries, the average exchange rate for the second quarter of the year (Q2 2015) was used for the calculation of MTRs and SMS TRs. The exchange rates used are reported in [Annex 10](#).

## Overview of incumbents' fixed termination rates per country and layer – July 2015 (Euro cents per minute of service)

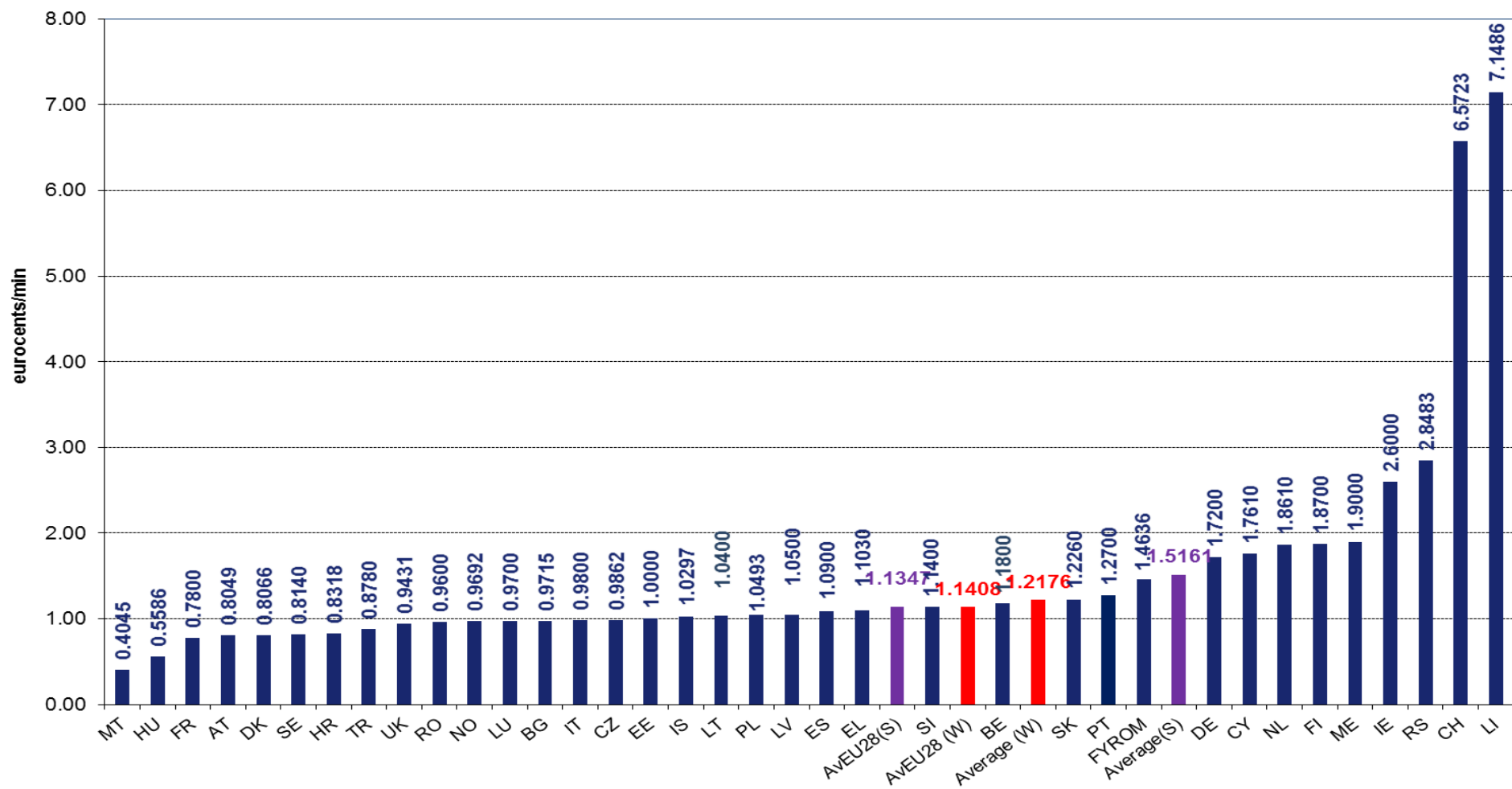
Figure 1 FTRs



Simple averages are provided for all layers. The simple average for EU countries (as represented per layer) is available in the last column. For more information see [Annex 1](#).

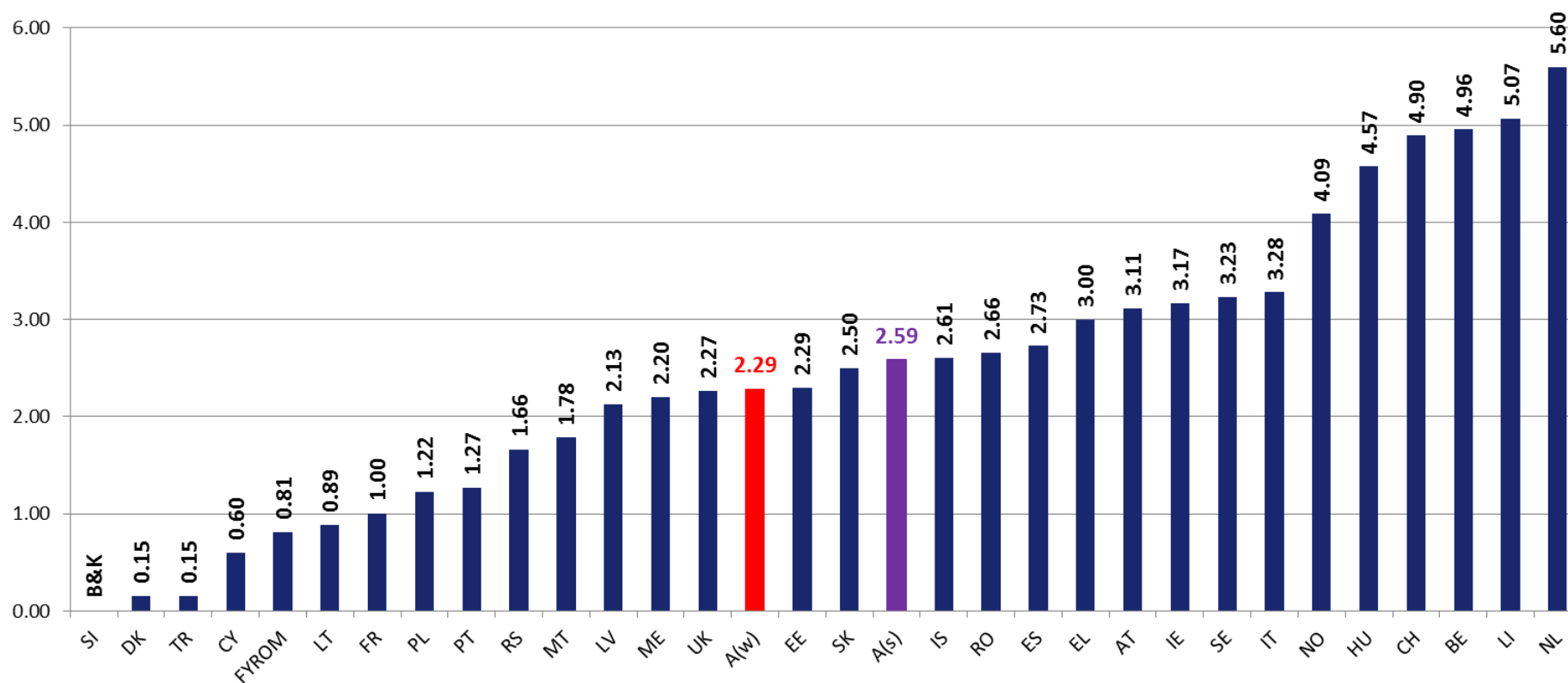
## MTR per country – July 2015 (Euro cents per minute of service)

Figure 2 MTR



## SMS TR per country – July 2015 (Euro cent per message)

Figure 3 SMS TR



## 2. Fixed networks – voice interconnection

The regulation of FTRs has been harmonized by the Recommendation of 7.5.2009 on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EU (C (2009) 3359 final). However, some differences can be found across the national regulatory regimes:

- 1) In some cases the termination rate is a two-part tariff, i.e. composed of a variable part (to be paid for each minute of a call) plus a set-up or fixed part (to be paid for each call). In other cases, termination prices consist only of the variable part.
- 2) Interconnection services in fixed networks are provided at different levels in the hierarchy of the incumbent's networks, called layers. Even though some peculiarities in specific countries are present, in general three main layers for interconnection are defined: i) layer 1, or local level service provision, ii) layer 2, or regional level service provision (single transit), and iii) layer 3, national level service provision (or double transit).

### 2.1. Assumptions made for benchmarking

The following assumptions have been made in order to make tariffs comparable:

- In order to obtain a homogeneous comparison of average prices per minute across operators, a 3-minute average call duration has been assumed, using the standard formula:  $(\text{fixed set-up charge} + \text{price per minute} \times 3) / 3$ .
- Nominal tariffs are reported only when the NRA has set out the maximum price per minute that operators may charge each other.
- For those countries which have not set a single tariff and which apply distinct rates for the peak/off-peak period, an average price has been calculated taking into account the traffic distribution between peak and off-peak time. When this distribution has not been made available, a 50/50 distribution has been assumed.

### 2.2. FTR benchmark

In Annex 1 the interconnection prices of operators listed by countries are presented. For each country, the NRA has provided information on the incumbent and some alternative or cable

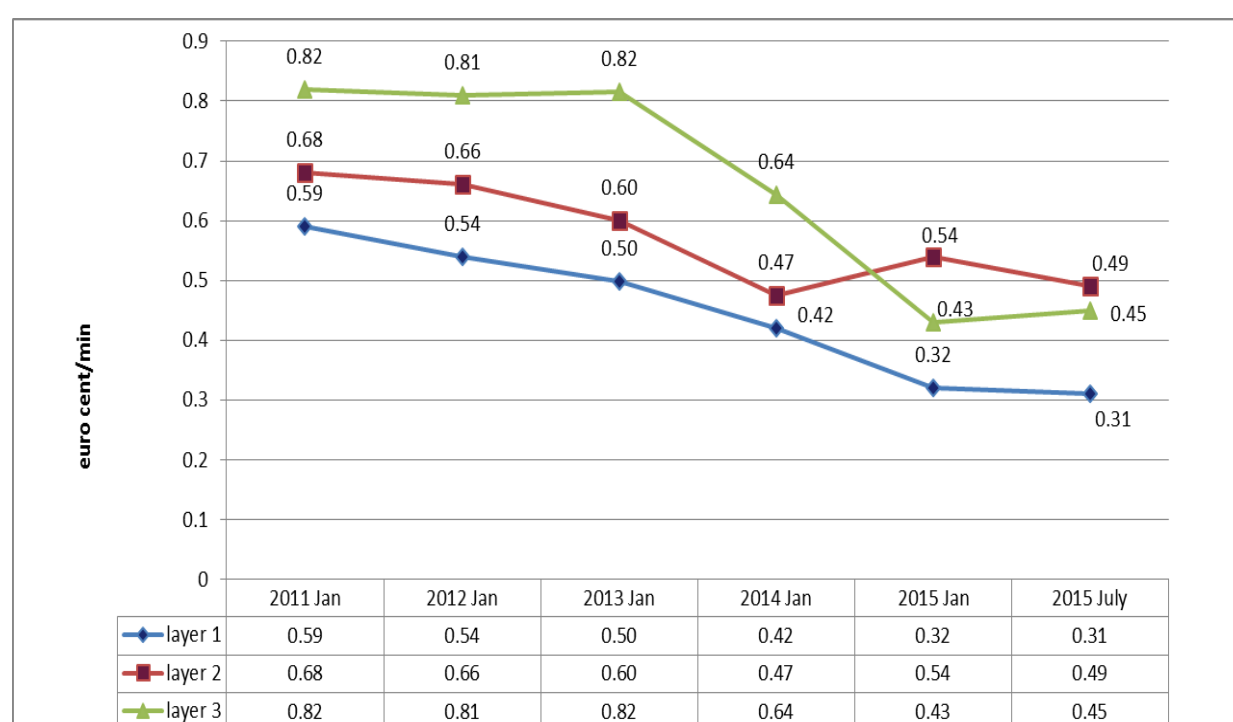


operators offering interconnection services. Peak and off-peak rates are differentiated, as well as the layer of interconnection. In the last column a weighted average of peak/off-peak prices is provided.

### 2.3. Incumbent interconnection rates trend (from January 2011 to July 2015)

This section presents the trend of simple average of effective average price per minute of each layer of interconnection service provided by incumbent operators. The averages for July 2015 comprise information available in [Annex 1](#).

**Figure 4 Simple averages<sup>23</sup> of incumbents' fixed termination rates at the European level per layer**

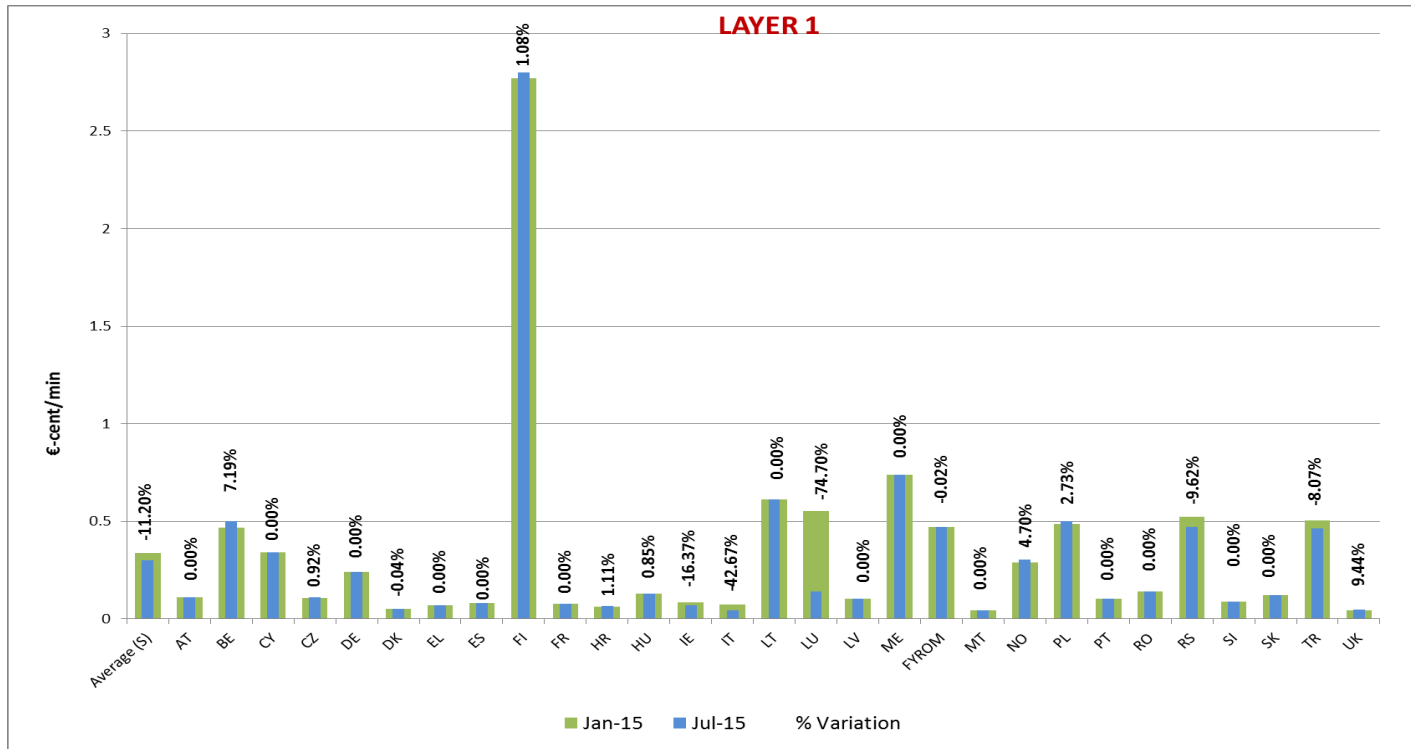


<sup>2</sup> The average of Layer 2 is slightly higher in January 2015 compared to January 2014, due to the inclusion of additional countries that did not provide information for January 2014.

<sup>3</sup> The average of Layer 3 in July 2015 is slightly higher compared to January 2015, due to the inclusion of different countries that did not provide information for January 2015.

## Short term evolution of incumbents' fixed termination rates per layer and country (from January 2015 to July 2015 in Euro cent)

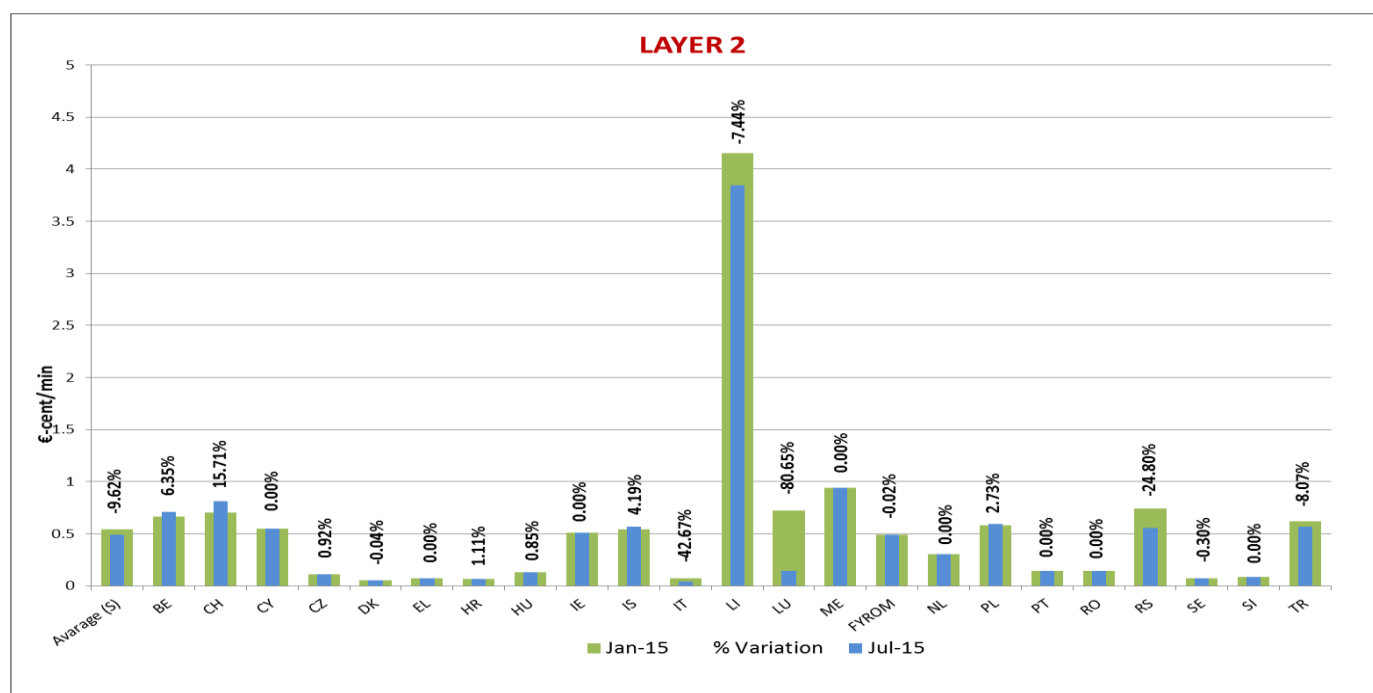
Figure 7 Layer 1 short term evolution<sup>45</sup>



The percentage variation of FTRs in non-Euro zone countries shows change only in the case of Serbia, where the price decreased by 9.52% in their national currency.

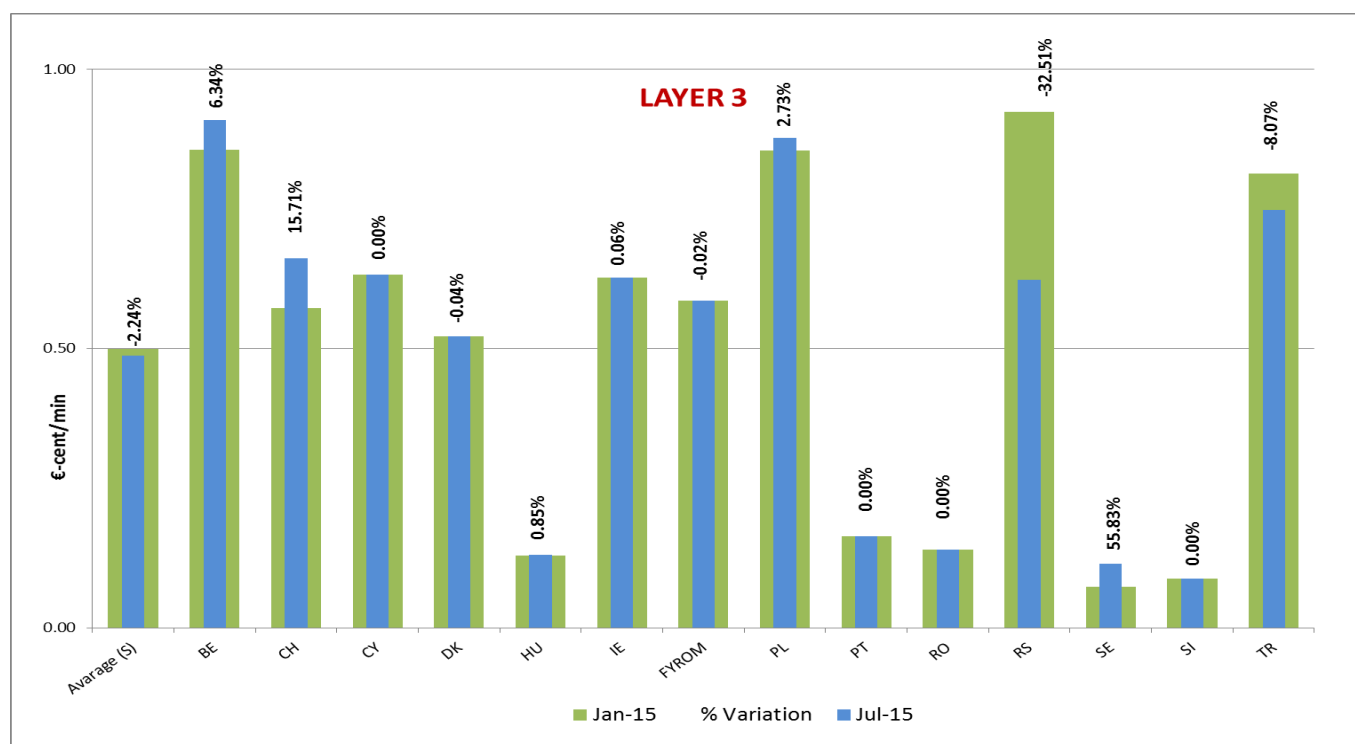
<sup>4</sup> The rates and variation for Finland reflect the average across all operators.

<sup>5</sup> The variation of FYROM reported as of July 2015 is calculated based on the rate of 0.4717 for January 2015.

Figure 8 Layer 2 short term evolution<sup>6</sup>

The percentage variation of FTRs in non-Euro zone national currency shows a decreasing trend in the cases of Liechtenstein by 20% and Serbia by 24.72%.

<sup>6</sup> The variation of FYROM reported as of July 2015 is calculated based on the rate of 0.4880 for January 2015.

Figure 9 Layer 3 short term evolution<sup>7</sup>

National currency variations for non-Euro zone countries show a decrease by 32.43% in case of Serbia in the period of January-July 2015.

#### 2.4. Average revenue per minute for all operators (2014)

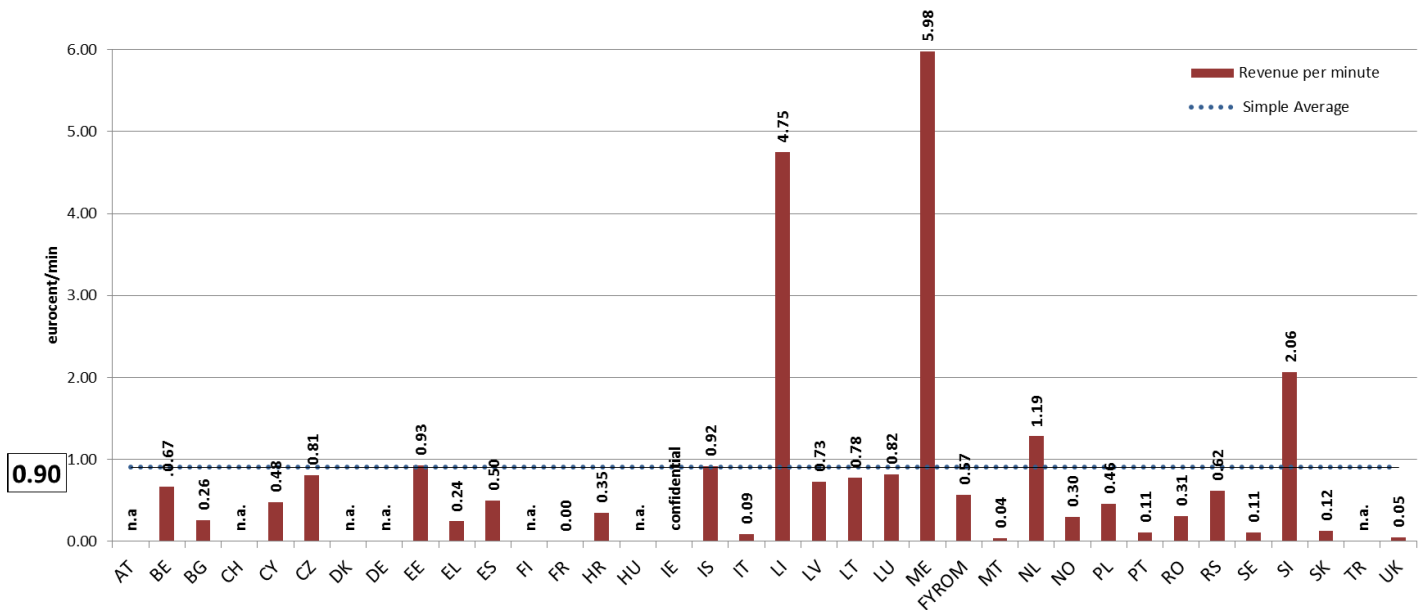
In the next graph (Figure 10) the average revenue per minute from interconnection services across all Layers and for all operators is reported, together with the simple average (horizontal line). The data refer to the entire year of 2014, unless otherwise stated in the notes. Note that the average revenues per minute provided are aggregated for each country to: 1) the different existing layers of interconnection, 2) the different operators (i.e., incumbents and the rest), and 3) the different prices deriving from the peak /off-peak differentiation in a number of countries.

The comparison across countries of this average revenue has limitations, since each country may have a different distribution in usage across the different layers of interconnection and in the distribution between peak and off-peak traffic.

<sup>7</sup> The variation of FYROM reported as of July 2015 is calculated based on the rate of 0.5855 for January 2015.

For more information consult [Annex 2](#).

**Figure 10 Average revenue<sup>8</sup> per minute (all operators) for the whole 2014**

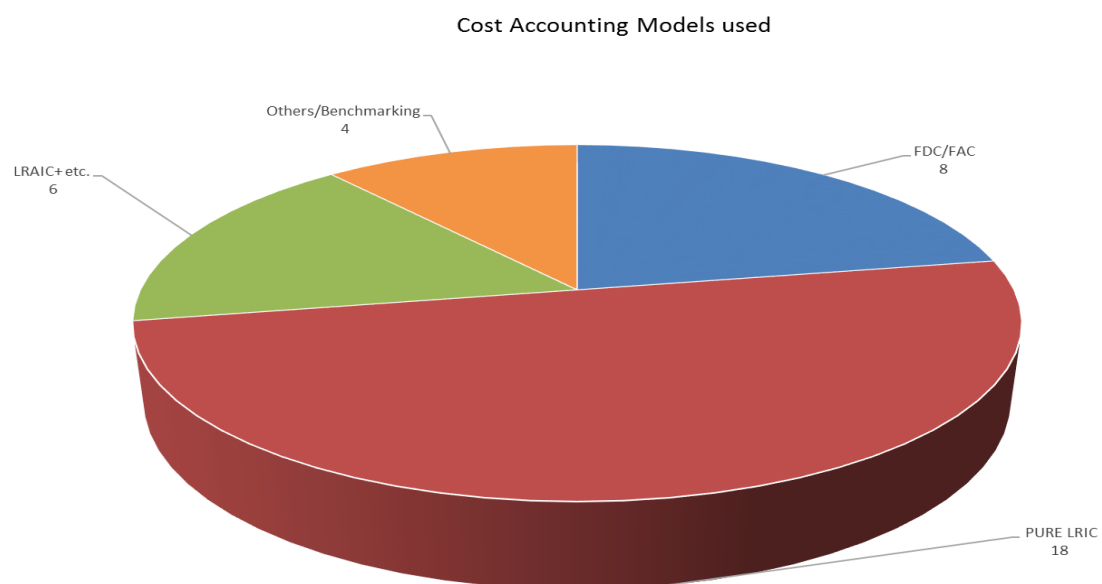


## 2.5. FTR regulatory model implemented and symmetry overview

Eighteen of the NRAs use Pure BULRIC models to set FTRs. The second most common model is FDC/FAC, used by eight NRAs. Six NRAs reported using a LRAIC+etc. models and four use Other/Benchmarking approaches.

<sup>8</sup> The average revenue per minute shows an increasing trend compared to January 2015 due to the fact one of the NRAs reported revenues from calls originated in national networks. July data include also calls originated from abroad, which are not subject to regulation. For more details consult Annex 2.

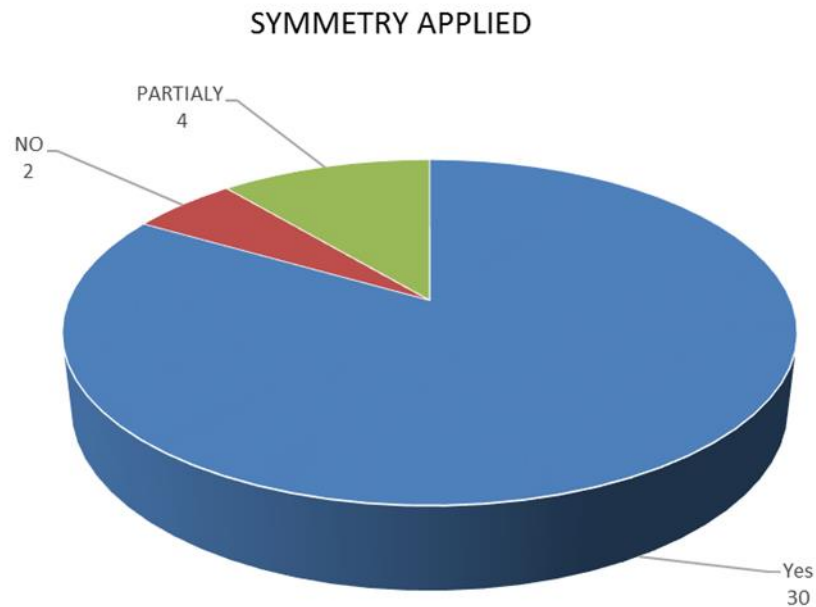
Figure 11 Cost accounting models used by NRAs



For more information consult [Annex 3](#).

In most of the respondent countries FTRs are symmetric across all operators. Four of the NRAs reported partial symmetry while only two countries' fixed termination rates are not set symmetrically.

**Figure 12 FTRs Symmetry**



For more information consult [Annex 4](#).

## 2.6. Number of lines and market shares

In [Annex 5](#) the number of active fixed telephony lines in the retail market is provided for each operator included in the report. For a number of countries this information is confidential.



### 3. Mobile networks – voice interconnection

This section presents the benchmark of mobile termination rates (MTR) with data as of 1 July 2015 and its recent evolution. The purpose of this comparison is to provide an indication of the level of MTRs across the NRAs, their variations and the cost models adopted for setting MTRs. Moreover this benchmarking exercise includes a section devoted to the analysis of the future evolution of MTRs. Finally, information about average wholesale termination revenues is provided.

The present overview of MTRs is based upon the results of a request for information sent to all NRAs in July 2015. It includes data from thirty-six (36) NRAs that provided responses.

#### 3.1. Assumptions made for the benchmarking

For the present benchmarking exercise the following assumptions have been made in order to make tariffs comparable<sup>9</sup>:

- Operators with a market share below 1.5% have been excluded from the national MTR average calculation.
- Only nominal tariffs are represented in the report, defining them as “the price (in Euro cent/minute) set out by the regulator that represents the maximum price per minute which operators may charge each other (without any adjustment for purchasing power parity or real effects – inflation).”
- Average MTRs per country have been obtained by weighting the MTR of each operator by its market share, measured in terms of subscribers. Four general averages have been calculated: a simple average and a weighted average, each at the European level (including all 36 countries reporting data) and at EU level (including only the 28 EU member states). The weighted averages weight each country’s average rate with the share of the country’s subscribers (total subscribers per country / total subscribers in all countries).
- Regarding the number of subscribers, it must be considered that different estimation methods are used among European countries (especially in the case of pre-paid consumers).
- VAT is not included in the revenues.

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<sup>9</sup> Generally speaking, these assumptions may create margins of error in the present comparison, making it difficult to draw valid conclusions for policy purposes.

- For non-Euro countries, the average exchange rate for the second quarter of the year (Q2 2015) was used to convert the currencies. The exchange rates used are reported in Annex 10.

Regarding the short-term MTR evolution (from January 2015 to July 2015), some variation may be a consequence of any of the following reasons:

- i. Modifications in the tariff structure (for instance, disappearance of the set-up charge or initial period);
- ii. Currency exchange rate variations in non-Euro countries<sup>10</sup>;
- iii. Changes in operators' market shares may have an effect on the average MTR for an individual country;
- iv. Inclusion of new operators that were not present in the previous benchmarks;

### 3.2. Average MTR per country: rates per voice minute (as of July 2015)

**Table 1 - Average MTR per country**

Country	Average MTR per country (€cent)
AT	0.8049
BE	1.1800
BG	0.9715
CH	6.5723
CY	1.7610
CZ	0.9862
DE	1.7200
DK	0.8066
EE	1.0000
EL	1.1030
ES	1.0900
FI	1.8700
FR	0.7800
HR	0.8318
HU	0.5586
IE	2.6000
IS	1.0297
IT	0.9800

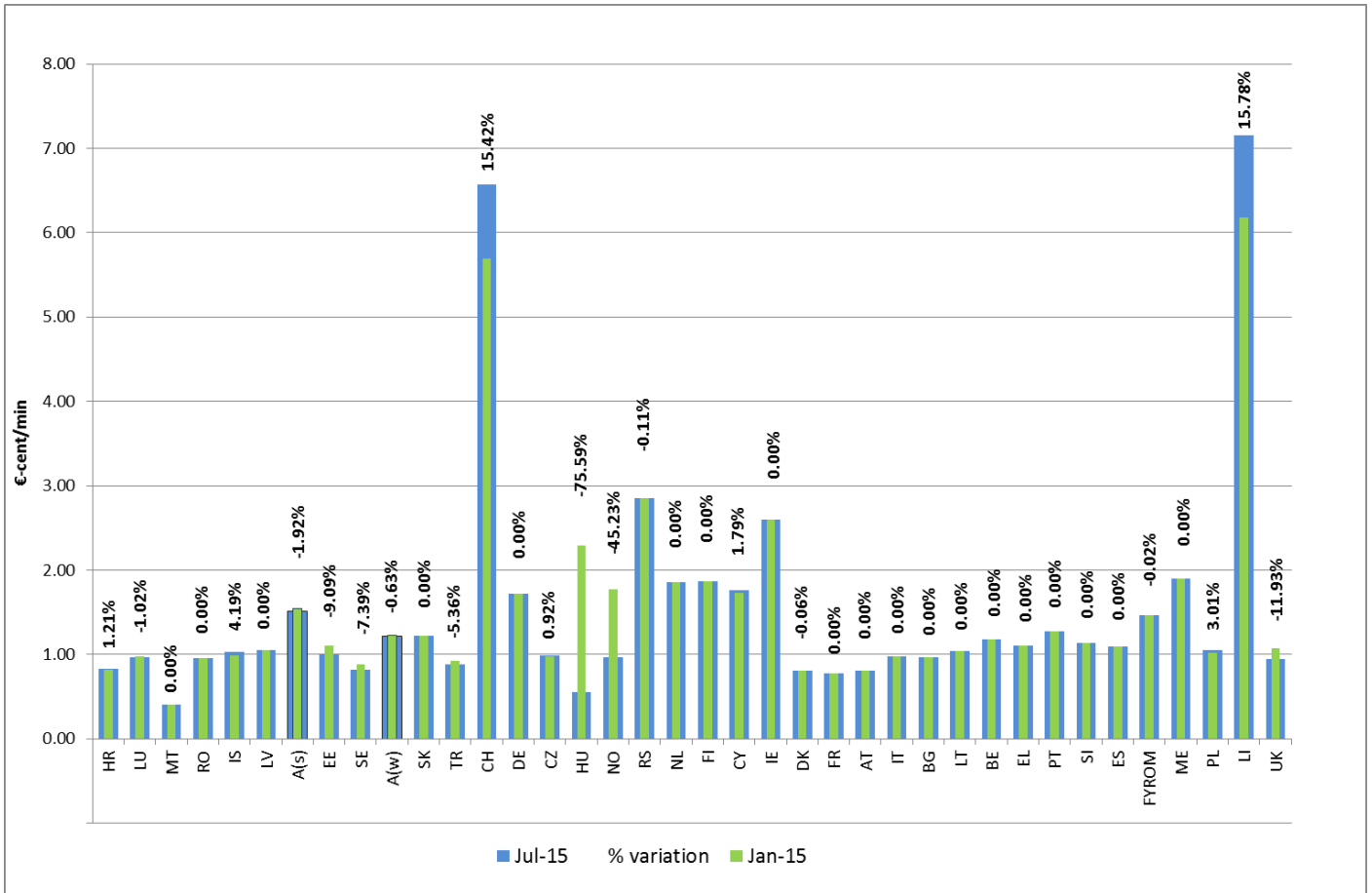
<sup>10</sup> This only affects short-term MTR evolution (figure 13) because the percentage of tariff variation in each country (figure 14) has been calculated by comparing rates expressed in terms of the national currency.

LI	7.1486
LT	1.0400
LU	0.9700
LV	1.0500
ME	1.9000
FYROM	1.4636
MT	0.4045
NL	1.8610
NO	0.9692
PL	1.0493
PT	1.2700
RO	0.9600
RS	2.8483
SE	0.8140
SI	1.1400
SK	1.2260
TR	0.8780
UK	0.9431
<b>Average(S)</b>	<b>1.5161</b>
<b>Average (W)</b>	<b>1.2176</b>
<b>Average EU 28 (S)</b>	<b>1.1347</b>
<b>Average EU 28 (W)</b>	<b>1.1408</b>

### **Short-term evolution of average MTRs per country (from January 2015 to July 2015, in Euro cent)**

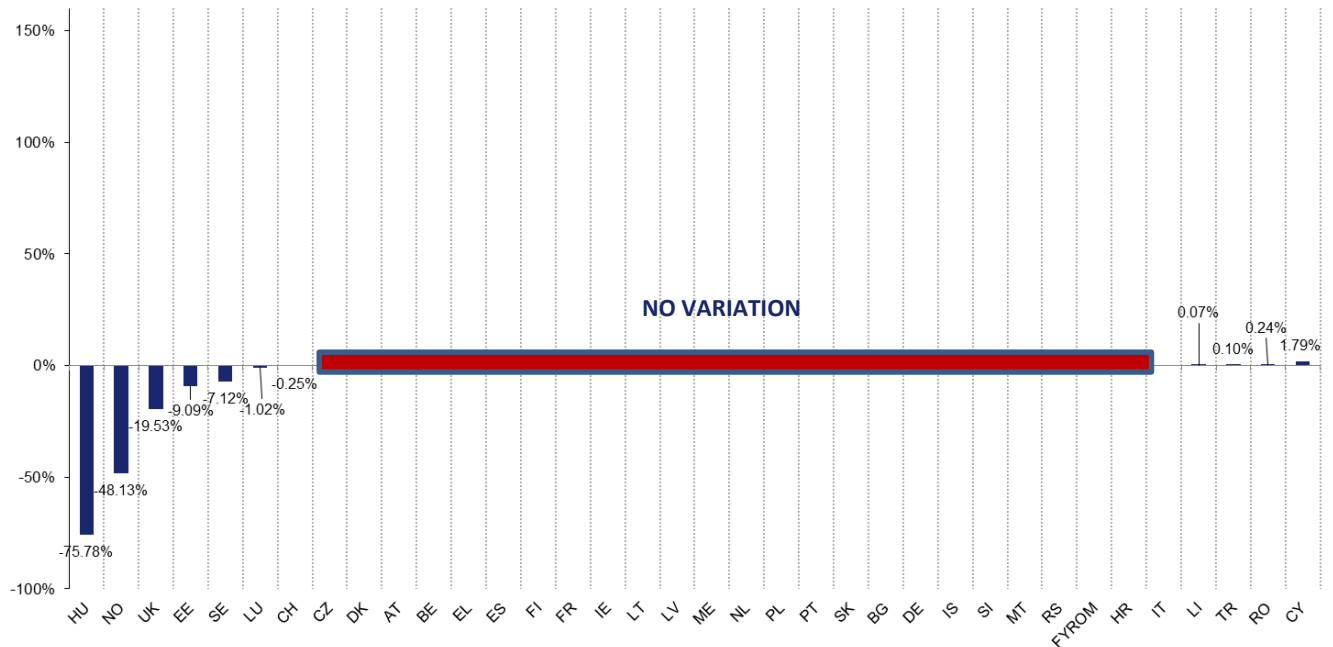
Figures 13 and 14 show the short term variations of MTRs in Euro and in national currency. These two figures illustrate the effect of the exchange rate on the short term evolution. The increase of the Polish MTRs e.g. are just a result of the exchange rate, since the rate in the national currency did not change. In Romania the regulated tariff is expressed in eurocents and had no variation during the period; the variation shown actually reflects the variation of the national currency exchange rate against the Euro.

Figure 13 variation in Euros



## Percentage variation of average MTRs in national currency per country (from January 2015 to July 2015)

Figure 14 variation in national currency



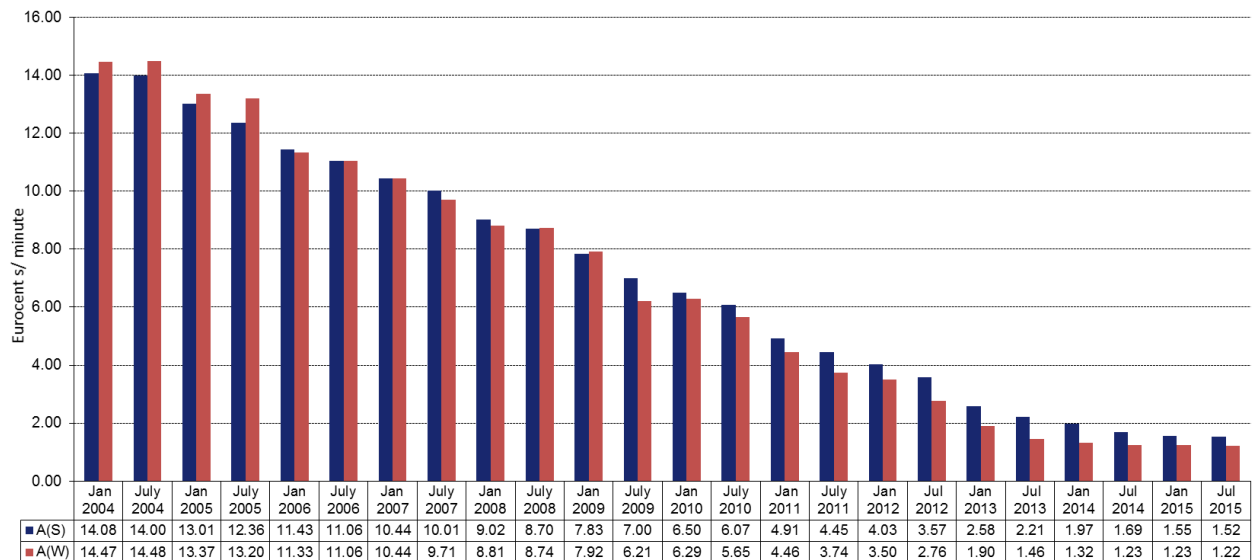
### 3.3. Average MTR per operator

There are a number of countries where information regarding number of subscribers and/or market share has been declared as confidential data and for this reason this report does not publish this data. Nevertheless, market shares have been taken into account for the average MTR calculations.

For further details see [Annex 6](#).

### 3.4. Average MTR: Times series of simple average and weighted average at European level

Figure 15 Evolution of simple and weighted averages

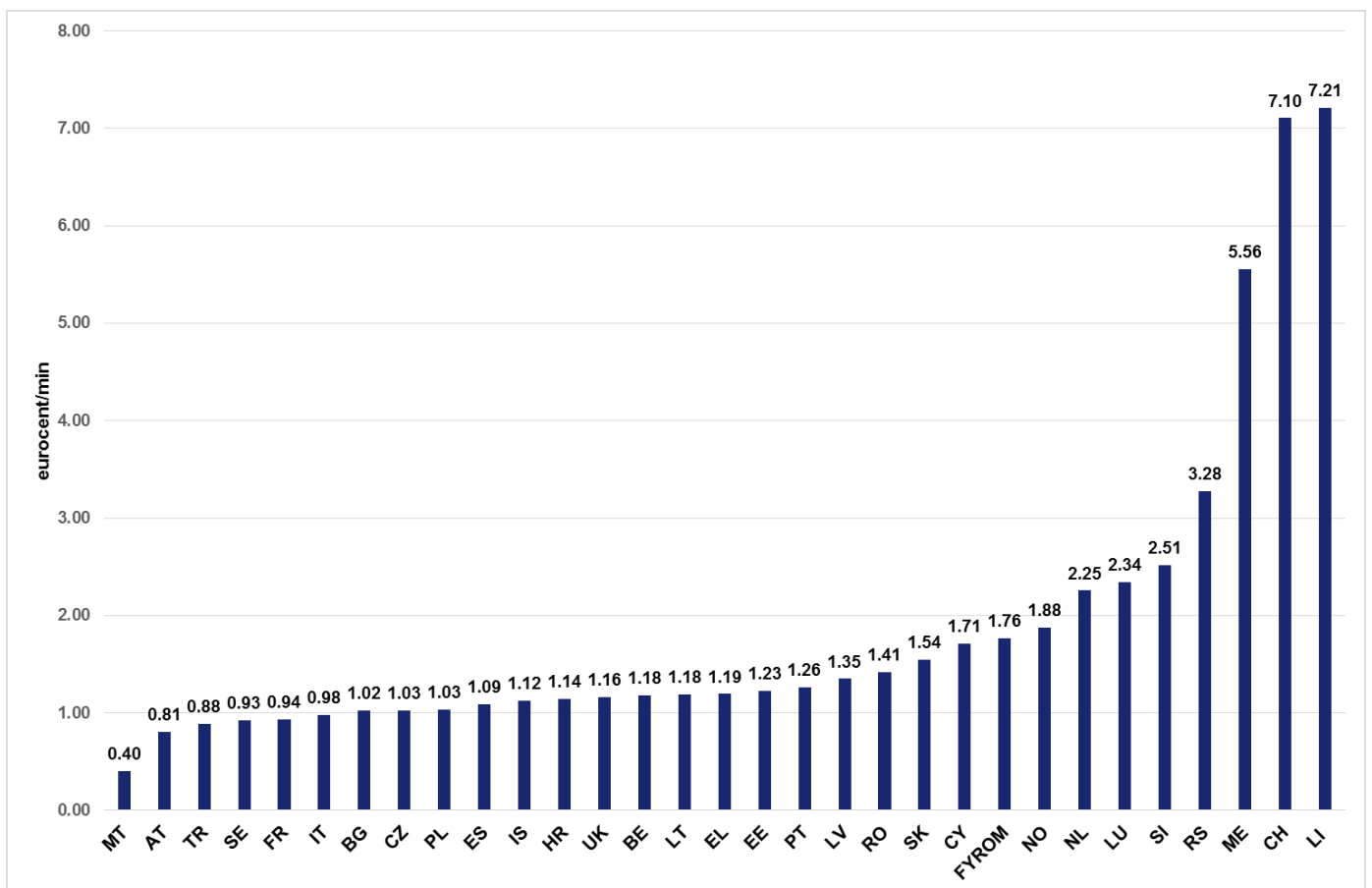


**Note to figure 15:** Averages are based on nominal rates per minute of service. The number of countries and operators considered has increased over the years, thus affecting the average slightly. Moreover the Weighted Average does not take into account countries not providing the total number of subscribers and those that could have changed over the years. Considering these caveats, the graph shows the general trend.

### 3.5. Average wholesale termination revenues

The average wholesale termination revenue is obtained as a ratio of total revenues from termination of voice services divided by the total number of minutes of termination provided by the operators. The data refer to the entire year of 2014, unless otherwise stated in the notes. Some countries do not collect information about termination revenues or treat this data as confidential. Those countries are not included in the figure.

**Figure 16 Average wholesale termination revenues per country (euro cent/min)**

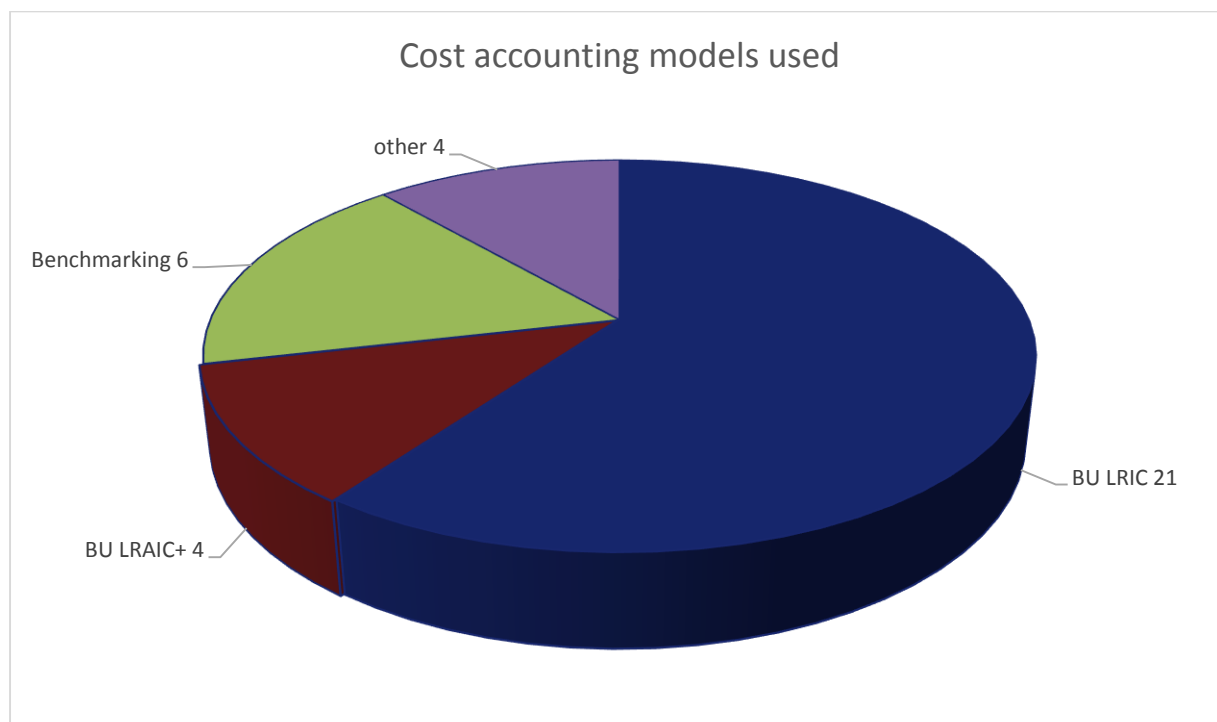


Notes to figure 16 see [Annex 7](#).

### 3.6. Regulatory model implemented and glide paths for MTRs

In the majority of states BU LRIC models are used to calculate the MTRs. But still a significant number of NRAs base their price decision on a BU LRAIC+ model.

**Figure 17 Cost accounting models used by NRAs**



For further details see [Annex 8](#).

## 4. Mobile networks - SMS interconnection

The short message service (SMS) offered by operators is used every day by millions of people all over the world. This service is not regulated in most EU countries, but the evolution of wholesale SMS termination rates is monitored in most cases by NRAs.

The present SMS benchmark report bases its results on the inputs received by NRAs in August 2015, referring to data as of July 2015. Thirty-six (36) countries provided data, but some NRAs – following national law provisions – asked to treat the SMS Termination Rates as confidential information.



The benchmark aims at keeping track of the main trends in wholesale SMS TRs in Europe. The scope of the report is limited to describe termination prices at national level (no international SMS TR are therefore considered<sup>11</sup>).

#### **4.1. Assumptions made for benchmarking**

The SMS TRs collected in this report reflect wholesale rates applied among domestic operators for an off-net SMS exchange, excluding VAT. They may diverge from the “average revenue from an SMS at wholesale level”.

In this report individual, i.e. operator’s specific, SMS TRs are presented, as well as averages calculated for each country as a whole. Regarding the number of subscribers, it must be considered that different estimation methods are used among European countries (especially in the case of pre-paid consumers). In some countries, SMS wholesale rates are considered to be confidential information.

The following characteristics of SMS TRs make the collection and comparison of data more straightforward (as compared to the exercise of benchmarking the FTRs and the MTRs):

- No countries differentiate between peak time, off-peak time and weekend hours.
- The price for SMS termination is related to each delivered domestic off-net SMS; therefore, no assumption is necessary about set-up charges or average call durations. Since Serbia introduced bilateral SMS TRs in June 2015, Slovenia is now the only country where “Bill & Keep” agreements are in place for traffic between all domestic operators.
- Average SMS TRs per country have been obtained by weighting the average TR of each operator by its market share, measured in terms of subscribers. Two general averages at the European level have been calculated: a simple average and a weighted average. The latter weights each country’s average with the share of the country’s subscribers (total subscribers per country / total European subscribers). In the case of the European weighted average, only the countries that reported TRs and the number of subscribers are taken into account. Since not all countries report complete sets of data, the calculated averages might vary slightly.

On the other hand and due to the generally unregulated environment existing for SMS TRs in most European countries, there is a high degree of bilateral negotiation among operators.

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<sup>11</sup> International SMS TRs in most European countries are also based on bilateral negotiations among operators, which generally result in higher levels than the domestic rates that are reflected in this report.

Therefore, some peculiarities in setting SMS TRs could emerge and require additional assumptions (as compared to the exercise of benchmarking the FTRs and the MTR):

- In some countries, operators have bilateral contract agreements implying different rates depending on the volume of SMS sent across the two networks. These non-linear relationships imply different average rates depending on the volume of SMS exchanged. In this case, the lowest average rate expected (corresponding to the highest volume of SMS) has been considered.
- Additionally, in some countries, operators will negotiate different SMS TRs vis-à-vis each one of the other operators. In this case, if not differently indicated, a TR simple average is considered.

Due to these considerations, for some countries the benchmarking proposed in this exercise may represent – with different levels of accuracy – the average SMS TR effectively charged for an off-net SMS.

For non-Euro countries, the exchange rates reported in the [Annex 10](#) are used.

For more information consult [Annex 9](#): SMS TR per operator.

## 4.2. Average SMS TR per country and per message (as of July 2015)

Table 2 - Average SMS TR per country

Country	Average SMS TR per country (€cent)
AT	3.11
BE	4.96
BG	confidential
CH	4.90
CY	0.60
CZ	confidential
DE	n.a.
DK	0.15
EE	2.29
EL	3.00
ES	2.73
FI	confidential
FR	1.00
HR	n.a.

HU	4.57
IE	3.17
IS	2.61
IT	3.28
LI	5.07
LT	0.89
LU	n.a.
LV	2.13
ME	2.20
FYROM	0.81
MT	1.78
NL	5.60
NO	4.09
PL	1.22
PT	1.27
RO	2.66
RS	1.66
SE	3.23
SI	Bill and keep
SK	2.50
TR	0.15
UK	2.27
<b>Average(S)</b>	<b>2.59</b>
<b>Average(W)</b>	<b>2.29</b>

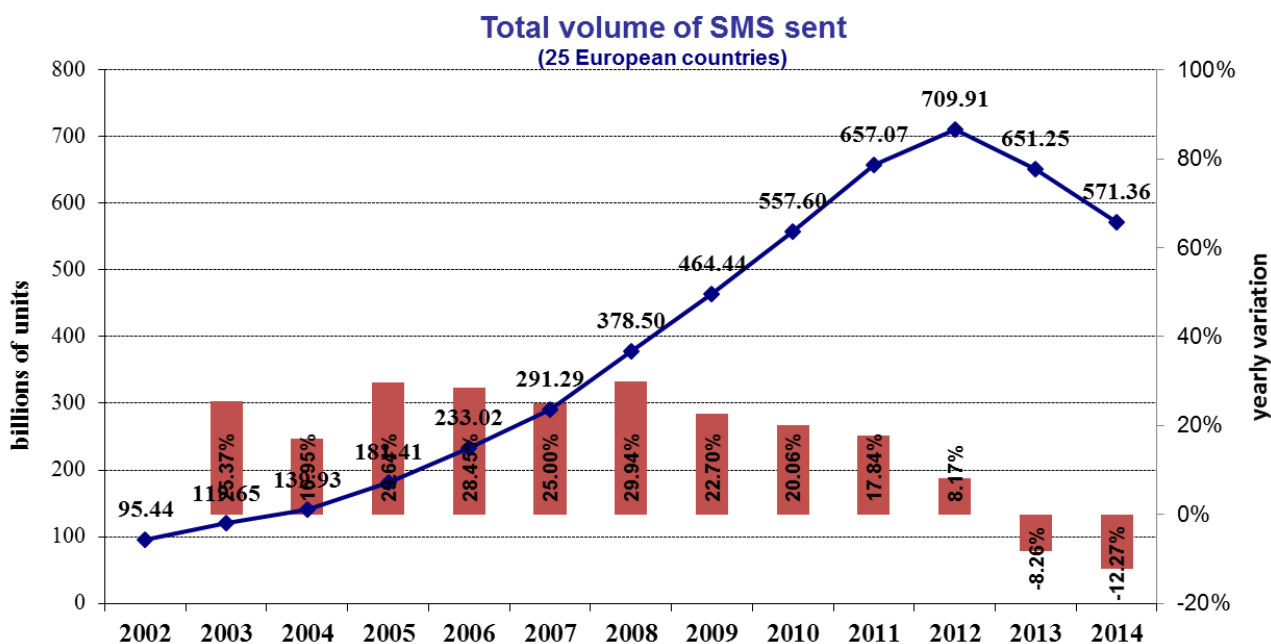
The increase of both averages can be explained to two factors:

- Significant negative impact of the exchange rates
- The inclusion of Serbia, which changed the regime from Bill & keep to a SMS TR regime

### 4.3. Volumes of SMS sent per country (2014)

Figure 18 is based on the time series of the countries from which information was available from 2002 to 2014. These countries are: Austria, Belgium, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Lithuania, Malta, Norway, Poland, Portugal, Romania, Slovak Republic, Spain, Sweden, Switzerland and UK.

**Figure 18 Volumes of SMS sent**

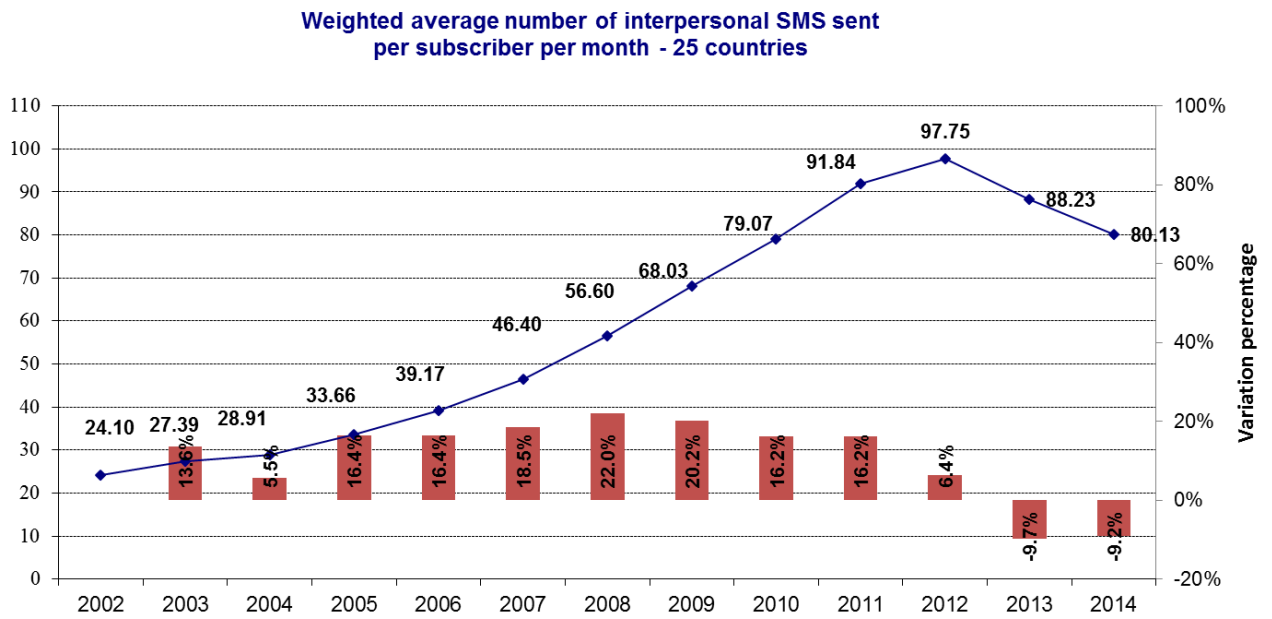


#### 4.4. Interpersonal SMS per subscriber

Since SMS volume growth has two components (the development of usage, i.e. the change in consumer consumption and a variation in the number of subscribers), it is worth describing the SMS usage through the average number of SMS per subscriber per month for each country (and its variation in time).

Figure 19 describes the trend from 2002 on for the same 25 countries as in figure 18. For a given year, the weighted average is obtained through pondering the average number of interpersonal SMS per subscriber per month of each country by its relative part of total subscribers (used in the panel of countries).

Figure 19 SMS per subscriber per month



## Annex

## Annex 1 Fixed termination rates as of 1 July 2015

Table 3

Country	Operator	Layer	Average effective price per operator €cents		
			peak	Off-peak	WA
AT	Telekom Austria	Layer 1	0.1370	0.0850	<b>0.1110</b>
	Other operators	Layer 1	0.1370	0.0850	<b>0.1110</b>
BE	Proximus	Layer 1	0.6187	0.3247	<b>0.5020</b>
		Layer 2	0.8747	0.4583	<b>0.7090</b>
		Layer 3	1.1213	0.4583	<b>0.9090</b>
	Other operators	Layer 1	0.8747	0.4583	<b>0.7090</b>
		Layer 2	1.1213	0.5883	<b>0.9090</b>
BG	Bulgarian Telecommunication Company	Layer 2	0.2556	0.2556	<b>0.2556</b>
		Layer 3	0.2556	0.2556	<b>0.2556</b>
	Mobitel	Layer 3	0.2556	0.2556	<b>0.2556</b>
	Telenor Bulgaria	Layer 3	0.2556	0.2556	<b>0.2556</b>
	Blizoo Media and Broadband	Layer 3	0.2556	0.2556	<b>0.2556</b>
	Other operators	Layer 3	0.2556	0.2556	<b>0.2556</b>
CH	Swisscom	Layer 2	1.0406	0.5411	<b>0.8126</b>
		Layer 3	0.8098	0.4419	<b>0.6615</b>
CY	CYTA	Layer 1	N/A	N/A	<b>0.3420</b>
		Layer 2	N/A	N/A	<b>0.5470</b>
		Layer 3	N/A	N/A	<b>0.6320</b>
	PRIMETEL	Layer 2	N/A	N/A	<b>0.6320</b>
	CABLENET	Layer 2	N/A	N/A	<b>0.6320</b>
MTN FIXED	Layer 2	N/A	N/A	<b>0.6320</b>	
CZ	O2 Czech Republic a.s.	Layer 1	N/A	N/A	<b>0.1096</b>
	České Radiokomunikace a.s	Layer 2	N/A	N/A	<b>0.1096</b>
	Vodafone Czech Republic a.s.	Layer 2	N/A	N/A	<b>0.1096</b>
	GTS Czech s.r.o.	Layer 2	N/A	N/A	<b>0.1096</b>
	UPC Česká republika s.r.o.	Layer 2	N/A	N/A	<b>0.1096</b>
	T-Mobile Czech Republic a.s.	Layer 2	N/A	N/A	<b>0.1096</b>
DE	Telekom Deutschland GmbH	Layer 1	0.2400	0.2400	<b>0.2400</b>
DK	TDC	Layer 1	0.0523	0.0523	<b>0.0513</b>
		Layer 2	0.0523	0.0523	<b>0.0513</b>
		Layer 3	0.5539	0.3395	<b>0.5217</b>
EE	Elion	Layer 3	0.1020	0.1020	<b>0.1020</b>
	Starman	Layer 3	0.1020	0.1020	<b>0.1020</b>
	Elisa	Layer 3	0.1020	0.1020	<b>0.1020</b>
	STV	Layer 3	0.1020	0.1020	<b>0.1020</b>

EL	OTE	Layer 1	N/A	N/A	<b>0.0695</b>
		Layer 2	N/A	N/A	<b>0.0695</b>
	Forthnet	Layer 1	N/A	N/A	<b>0.0695</b>
		Layer 2	N/A	N/A	<b>0.0695</b>
	HOL	Layer 1	N/A	N/A	<b>0.0695</b>
		Layer 2	N/A	N/A	<b>0.0695</b>
	WIND	Layer 1	N/A	N/A	<b>0.0695</b>
		Layer 2	N/A	N/A	<b>0.0695</b>
	Other operators	Layer 1	N/A	N/A	<b>0.0695</b>
		Layer 2	N/A	N/A	<b>0.0695</b>
ES	Telefónica de España	Layer 1	0.0817	0.0817	<b>0.0817</b>
	Vodafone - ONO	Layer 1	0.0817	0.0817	<b>0.0817</b>
	Orange	Layer 1	0.0817	0.0817	<b>0.0817</b>
	Vodafone	Layer 1	0.0817	0.0817	<b>0.0817</b>
	Jazztel	Layer 1	0.0817	0.0817	<b>0.0817</b>
	Other operators	Layer 1	0.0817	0.0817	<b>0.0817</b>
FI	Elisa Oyj	N/A	N/A	N/A	<b>2.800</b>
	DNA Oyj	N/A	N/A	N/A	<b>2.800</b>
	TeliaSonera Finland Oyj	N/A	N/A	N/A	<b>2.800</b>
	Average	N/A	N/A	N/A	<b>2.800</b>
FR	Orange	Layer 1	N/A	N/A	<b>0.0790</b>
	Other operators	Layer 1	N/A	N/A	<b>0.0790</b>
HR	HT	Layer 1	0.0792	0.0391	<b>0.0652</b>
		Layer 2	0.0792	0.0391	<b>0.0652</b>
	Optima Telekom	Layer 2	0.0792	0.0396	<b>0.0661</b>
	VIPnet	Layer 2	0.0792	0.0396	<b>0.0646</b>
	H1 Telekom	Layer 1	0.0792	0.0396	<b>0.0709</b>
		Layer 2	0.0792	0.0396	<b>0.0709</b>
HU	Magyar Telekom	Layer 1	0.1307	0.1307	<b>0.1307</b>
		Layer 2	0.1307	0.1307	<b>0.1307</b>
		Layer 3	0.1307	0.1307	<b>0.1307</b>
	Invitel	Layer 1	0.1307	0.1307	<b>0.1307</b>
		Layer 2	0.1307	0.1307	<b>0.1307</b>
		Layer 3	0.1307	0.1307	<b>0.1307</b>
	UPC	Layer 1	0.1307	0.1307	<b>0.1307</b>
	Other operators		0.1307	0.1307	<b>0.1307</b>
IE	Eircom	Layer 1	0.0007	0.0007	<b>0.0716</b>
		Layer 2	0.0061	0.0033	<b>0.5082</b>
		Layer 3	0.0075	0.0041	<b>0.6264</b>
IS	Siminn	Layer 2	0.5668	0.5668	<b>0.5668</b>
	Vodafone	Layer 2	0.5668	0.5668	<b>0.5668</b>
IT	Telecom Italia S.p.A.	Layer 2	0.0430	0.0430	<b>0.0430</b>
		Layer 1	0.0430	0.0430	<b>0.0430</b>
	Wind Telecomunicazioni S.p.A.	Layer 1	0.0430	0.0430	<b>0.0430</b>
	Fastweb S.p.A.	Layer 1	0.0430	0.0430	<b>0.0430</b>
Vodafone Omnitel B.V	Layer 1	0.0430	0.0430	<b>0.0430</b>	
LI	Telecom Liechtenstein AG	Layer 2	3.8425	3.8425	<b>3.8425</b>

LT	TEO LT AB	Layer 1	0.6111	0.6111	<b>0.6111</b>
	CSC Telecom	Layer1	0.6111	0.6111	<b>0.6111</b>
	Lietuvos gelezinkeliai	Layer 1	0.6111	0.6111	<b>0.6111</b>
LU	EPT	Layer 1	0.1400	0.1400	<b>0.1400</b>
		Layer 2	0.1400	0.1400	<b>0.1400</b>
LV	Lattelecom	Layer 1	0.1037	0.1037	<b>0.1037</b>
	Baltcom TV	Layer 1	0.1037	0.1037	<b>0.1037</b>
	CSC Telecom	Layer 1	0.1037	0.1037	<b>0.1037</b>
	Latvijas Dzelzsceļš	Layer 1	0.1037	0.1037	<b>0.1037</b>
	Latvijas Mobilais Telefons	Layer 1	0.1037	0.1037	<b>0.1037</b>
ME	Crnogorski Telekom	Layer 1	0.7400	0.7400	<b>0.7400</b>
	Crnogorski Telekom	Layer 2	0.9400	0.9400	<b>0.9400</b>
	Mtel	Layer 1	0.9400	0.9400	<b>0.9400</b>
FYROM	Makedonski Telekom AD	Layer 1	0.0047	N/A	<b>0.4716</b>
		Layer 2	0.0049	N/A	<b>0.4878</b>
		Layer 3	0.0059	N/A	<b>0.5854</b>
	ONE Telecom services	Layer 3	0.0059	N/A	<b>0.5854</b>
	Robi	Layer 3	0.0059	N/A	<b>0.5854</b>
	Blizoo	Layer 3	0.0059	N/A	<b>0.5854</b>
	Other operators	Layer 3	0.0059	N/A	<b>0.5854</b>
MT	GO plc	Layer 1	N/A	N/A	<b>0.0443</b>
	Melita plc	Layer 1	N/A	N/A	<b>0.0443</b>
	Vodafone	Layer 1	N/A	N/A	<b>0.0443</b>
	Ozone	Layer 1	N/A	N/A	<b>0.0443</b>
	Vanilla	Layer 1	N/A	N/A	<b>0.0443</b>
	SIS	Layer 1	N/A	N/A	<b>0.0443</b>
NL	KPN	Layer 2	N/A	N/A	<b>0.3020</b>
	Ziggo	Layer 2	N/A	N/A	<b>0.3020</b>
	UPC	Layer 2	N/A	N/A	<b>0.3020</b>
	Tele2	Layer 2	N/A	N/A	<b>0.3020</b>
NO	Telenor	Layer 1	0.3036	0.3036	<b>0.3036</b>
	Ventelo	Layer 1	0.3036	0.3036	<b>0.3036</b>
	Tele2	Layer 1	0.3036	0.3036	<b>0.3036</b>
	Telio	Layer 1	0.3036	0.3036	<b>0.3036</b>
PL	Orange Polska S.A.	Layer 1	0.6678	0.3351	<b>0.5014</b>
		Layer 2	0.7950	0.3963	<b>0.5956</b>
		Layer 3	1.1692	0.5846	<b>0.8769</b>
	NETIA	Layer 1	0.6678	0.6678	<b>0.6678</b>
	Multimedia PolsKa S.A. TK Telekom	Layer 1	0.6678	0.6678	<b>0.6678</b>
PT	Meo	Layer 1	0.1026	0.1026	<b>0.1026</b>
		Layer 2	0.1411	0.1411	<b>0.1411</b>
		Layer 3	0.1642	0.1642	<b>0.1642</b>
	Nos Group	Layer 1	0.1114	0.1114	<b>0.1114</b>
	Vodafone	Layer 1	0.1114	0.1114	<b>0.1114</b>
	Onitelecom/Cabovisão	Layer 1	0.1114	0.1114	<b>0.1114</b>



<b>RO</b>	TELEKOM RC S.A. (former Romtelecom)	Layer 1	N/A	N/A	<b>0.1400</b>
		Layer 2	N/A	N/A	<b>0.1400</b>
		Layer 3	N/A	N/A	<b>0.1400</b>
	RCS&RDS S.A.	Layer 1	N/A	N/A	<b>0.1400</b>
	UPC Romania S.R.L.	Layer 1	N/A	N/A	<b>0.1400</b>
	VODAFONE ROMANIA S.A.	Layer 1	N/A	N/A	<b>0.1400</b>
<b>RS</b>	Telekom Srbija	Layer 3	0.6228	0.6228	<b>0.6228</b>
		Layer 2	0.5564	0.5564	<b>0.5564</b>
		Layer 1	0.4733	0.4733	<b>0.4733</b>
	Orion telekom Telenor	Layer 1	0.5149	0.5149	<b>0.5149</b>
		Layer 1	0.5149	0.5149	<b>0.5149</b>
	SBB	Layer 1	0.5149	0.5149	<b>0.5149</b>
<b>SE</b>	TeliaSonera	Layer 2	N/A	N/A	<b>0.0710</b>
		Layer 3	N/A	N/A	<b>0.1151</b>
<b>SI</b>	Telekom Slovenije	Layer 1	0.0876	N/A	<b>0.0876</b>
		Layer 2	0.0876	N/A	<b>0.0876</b>
		Layer 3	0.0876	N/A	<b>0.0876</b>
	Telemach	Layer 1	0.0876	N/A	<b>0.0876</b>
	T-2	Layer 1	0.0876	N/A	<b>0.0876</b>
	Amis	Layer 1	0.0876	N/A	<b>0.0876</b>
<b>SK</b>	Slovak Telekom	Layer 1	0.1234	0.1234	<b>0.1234</b>
	Orange Slovensko, a.s.	Layer 1	0.1234	0.1234	<b>0.1234</b>
	Swan	Layer 1	0.1234	0.1234	<b>0.1234</b>
	UPC	Layer 1	0.1234	0.1234	<b>0.1234</b>
<b>TR</b>	Türk Telekom	Layer 1	N/A	N/A	<b>0.4641</b>
		Layer 2	N/A	N/A	<b>0.5709</b>
		Layer 3	N/A	N/A	<b>0.7478</b>
	TTNet	Layer 3	N/A	N/A	<b>1.0683</b>
	Superonline	Layer 3	N/A	N/A	<b>1.0683</b>
	Turknet	Layer 3	N/A	N/A	<b>1.0683</b>
<b>UK</b>	BT	Layer 1	0.0624	0.0291	<b>0.0485</b>
	TalkTalk	Layer 1	0.0624	0.0291	<b>0.0485</b>
	Virgin Media	Layer 1	0.0624	0.0291	<b>0.0485</b>
	Vodafone	Layer 1	0.0624	0.0291	<b>0.0485</b>
	Sky	Layer 1	0.0624	0.0291	<b>0.0485</b>

### Notes to Table 3

**Incumbents per country are indicated first.**

**BE:** The same levels are applicable to other operators. However they usually provide L2 IC (except a cable incumbent that also provides L3).

Average FTRs are not based on actual data (i.e. revenues/volumes) as no data is available for each layer. Rather, the 'average FTR' per minute per Layer is calculated by de-averaging the

setup/conveyance and peak/off-peak tariffs (peak/off-peak gradient is 1,22/0,64 and the setup amounts to 16% of the total cost a 3,2 minute call).

**BG:** The incumbent' core network is conditionally divided into two logical hierarchy levels: upper logical hierarchy level (national) and lower logical hierarchy level (formal local and regional layers). The segmentation is based on geographical codes served by the media gateways in the network. The applied fixed terminating rate is cost-oriented based on Pure Bu-LRIC model– 0,005 BGN/minute and there is no differentiation between peak/off-peak or hierarchy levels.

**CH:** A "clause of reciprocity" is in place, meaning that the tariffs of other operators have to be same as those of Swisscom.

**CY:** Only one rate applies. No separation of rates to peak and off-peak. No data exist per layer. CYTA uses layer 1 interconnection for local and regional coverage and layer 2 for national coverage. Alternative operators use layer 2 interconnection.

**CZ:** In the Czech Republic hypothetic Layer 3 with national coverage can be achieved through transit of traffic between two regional POI. However, this is not supposed to be part of fixed termination and transit prices are not regulated. Currently all OLOs active on the relevant market are interconnected only on Layer 2 (regional coverage). Data, incl. list of operators, relate to 1st January 2015.

**EL:**

1) Since 1/1/2014 there is no distinction between peak and off peak FTRs.

2) Since 28/5/2014 (a) there is no difference between the FTRs of Layer 1 and Layer 2 and (b) Layer 3 is a non-regulated interconnection layer (the respective FTR cannot be defined since the transit rate has been deregulated).

**FI:** The answers include three biggest operators in terms of market share and other FNOs. Other FNOs' FTR is simple average. In Finland there are about 30 fixed telephony operators.

**FR:** FTR average per minute for the incumbent includes a capacity-based component: derived from a unit price of 874,80 euros per E1 per year, divided by an average load of 2.5 million minutes per E1 per year.

**HR:** Please note that interconnection at national level with HT is not regulated anymore (Decision of HAKOM form 31 March 2015 on market analysis of market M1). HT can offer interconnection at national level, but this is now based on commercial offer. Therefore, this time HAKOM did not fill in data for Layer 3 (national level) of HT like it did for previous years.

**IE:** Please note that ComReg Decision D12/12 set fixed termination rates at layer one (ie ericom's primary). ComReg Decision D12/12 imposed symmetrical blended rate of 0.085 cent per minute for all SMP fixed operators from 1 July 2014. This blended FTR will reduce to 0.072 cent per minute from 1 July 2015. Please refer to Annex1 in ComReg Decision D12/12 at [http://www.comreg.ie/\\_fileupload/publications/ComReg12125.pdf](http://www.comreg.ie/_fileupload/publications/ComReg12125.pdf)

**IS:** Single Transit - FTR average calculated for a 3 minute call.

**LI:** Note to 1.4 Distribution of traffic: Telecom Liechtenstein AG does not use differentiated Peak/Off-peak FTRs.

**LT:** Data as of 2015 IQ. Due to currency changes: till 31/12/2014 FTRs were 2,11 LTL ct/min, after 01/01/2015 - FTRs are 0,61 EUR ct/min. (exchange rate 1 EUR : 3,45280 LTL). In table above, FTRs are in euros.

**LU:** FTRs applicable since of: 01/01/2015. The regulation defines only a maximal price cap and operators may implement the solution in their own way; no distinction of layers in the regulation.

**PT:** Termination price is charged on a per second basis from the first second. There is no differentiation on prices concerning peak and off peak hours. Note that Altice Group in July 2015 included Cabovisão, OniTelecom and MEO. Nevertheless in the table above TRs are presented separately because of the differences in interconnection **prices and** layers between MEO and Onitelecom/ Cabovisão.

**TK:** In Turkey, there is no differentiation such as peak and off-peak.

**UK:** BT is subject to a charge control where the average price cap for the year must equal 0.035ppm. BT is free to set prices within this cap. BT has set different rates for day, evening and weekend traffic. The off-peak rate shown above corresponds to the evening rate. Its weekend rate is 0.016ppm. As stated above, all other CPs must set rates that are fair and reasonable rates, which are presumed to be symmetric to BT.



## Annex 2 Average revenue per minute (all operators) for the whole 2014

### Notes to Figure 10

**BE:** Termination indicated is to geographical numbers.

**BG:** Data filled in the table refers to year 2014. Data includes traffic and revenue from international incoming calls terminated in fixed networks. Revenues and traffic terminated in non-geographic numbers in fixed networks are not included in the questionnaire. Cost-oriented fixed terminating rates based on Pure Bu-LRIC model are in force – 0,005 BGN/minute. No FTRs differentiation between peak/off-peak or interconnection levels.

**CH:** The data is not collected.

**CY:** FTR unchanged during the reported period.

**DK:** There is no data for the total FTR revenue in Denmark. Instead, the average DKK revenue per minute can be calculated by the average length of a phonecall (3,24 min.), the price for one minut (0,45) and the start-up charge of 0,48, which then equals 0,00598 DKK/min.

**EL:** The FTRs rates for the period 1/1/2014- 27/5/2014 were defined by EETT with 2 decisions, on 13/6/2014 for the incumbent and on 26/3/2013 for the alternative operators, according to the 2nd round of Market Analysis - Decision EETT 573/017/22-7-2010 (Official Gazette 1353/1-09-2010). Additionally the FTRs changed on 28/4/2014 with reference to the period 28/5/2014-31/12/2014, as a result of the 3rd round of Market Analysis -Decision EETT 714/09/10-4-2014 (Official Gazette 1049/28-04-2014).

**ES:** The FTR changed from November 1st 2015 onwards. Reported figures include the total amount of operators in CNMC's Annual Report'14.

**HR:** FTRs for the year 2014 were not based on pure BU-LRIC model and therefore were higher than set for 2015.

**IE:** The data relates to Eircom's traffic only. There is no separation for National, Regional or Local termination available.

**IT:** Estimated data. Since FTRs are symmetric (with respect to the level of termination), AGCOM does not distinguish between national and local FTRs.

**LI:** Liechtenstein has only one fixed net operator (Telecom Liechtenstein AG), and three mobile operators (one of them being Telecom Liechtenstein AG). The figures comprise all terminated traffic, regardless of origin.

**LT:** LT national currency is euro from 01/01/2015. Since data is for 2014, Litas national currency was used with the respective exchange rate to calculate the revenues.

**LV:** FTRs were reduced by 90 % from 01.07.2014.

**LU:** No distinction between national-regional-local fixed termination.

**ME:** FTR for calls that are originated from abroad are not regulated. FTR are changed from 01. November of 2014 for national calls (fixed and mobile). Data for January (0.94 euro cent/min) included only revenues from calls that originate in national networks in Montenegro.

Data for July (5.98 euro cent / min) included all revenues, from calls that originate in national networks and calls that are originated from abroad.

**NO:** NPT has not sufficient data to provide accurate results. However, we've made an estimate based on the termination volume reported 2014 and the termination price on the incumbent's network in 2014.

**RO:** FTRs changed in April 2014.

**SI:** National FTR revenues and minutes also include traffic terminated in fixed network on premium numbers, numbers for televoting, mass calling and short dialling numbers.

**SK:** In 2014 some operators provided interconnection also on regional and local levels. From 2015 only on national levels based on the transition to IP networks.

## Annex 3 FTR regulatory model implemented

Country	COST ACCOUNTING MODEL
AT	Pure BU LRIC
BE	TD
BG	Pure BU LRIC
CH	BU LRAIC+
CY	TD
CZ	Pure BU LRIC
DE	BU LRAIC+
DK	Pure BU LRIC
EE	Benchmark
EL	Pure BU LRIC
ES	Pure BU LRIC
FI	FDC
FR	BU-LRIC
HR	Pure BU LRIC
HU	Pure BU LRIC
IE	Pure BU LRIC
IS	Other
IT	Pure BU LRIC
LI	TD
LT	BU LRAIC+
LU	Pure BU LRIC
LV	Benchmark
FYROM	TD LRIC
ME	HCA-FDC
MT	Pure BU LRIC
NL	BU LRAIC+
NO	LRAIC
PL	TD
PT	Benchmark
RO	Pure BU LRIC
RS	TD-FAC-CCA
SE	Pure BU LRIC
SI	Pure BU LRIC
SK	Pure BU LRIC
TR	BU LRAIC+
UK	Pure BU LRIC

**Notes to Figure 11**

**BG:** With Decision 134 from 14 February 2013 CRC approved cost-oriented fixed termination rates based on a Pure Bu-LRIC model. There is no differentiation between peak/off-peak or interconnection levels.

**CH:** Source of the Swisscom-Tariffs: [https://www.swisscom.ch/dam/swisscom/de/ws/documents/D\\_IC-Dokumente/Handbuch%20Preise\\_IC\\_V1-12.pdf](https://www.swisscom.ch/dam/swisscom/de/ws/documents/D_IC-Dokumente/Handbuch%20Preise_IC_V1-12.pdf), p.11

**CY:** Termination rates are calculated on TD-LRAIC basis. The rates for all the operators that were found to have significant market power are based on CYTA's rates (incumbent). A BU LRIC model is currently being developed.

**CZ:** According to a final determination made in August 2014, the level of FTRs is set to 0.03 CZK per minute. The calculation of FTRs has been based on pure BU-LRIC model. For the purposes of FTR regulation, CTU has determined one level of FTRs without differentiation between peak and off-peak periods.

**DE:** There is no glide path regulation. FTRs are valid from 1 December 2014 until 31 December 2016. The decision is preliminary and still subject to a Phase II investigation.

**EE:** Benchmark: Incumbent's FTR

**EL** A Pure BU LRIC model is applied since 28 May 2014 as a result of EETT's decision 714/09/10-4-2014 (Official Gazette 1049/28-04-2014).

**ES:** From 1 November 2015 onwards, new regulation for FTR will be applied. There is no separation between peak and off-peak and only the local level is regulated.

**IE:** In relation to fixed termination for Layer 1 (i.e. primary) ComReg Decision D12/12 imposed symmetrical blended rate of 0.085 cent per minute for all SMP fixed operators from 1 July 2014. This blended FTR will reduce to 0.072 cent per minute from 1 July 2015. Please refer to Annex 1 in ComReg Decision D12/12 at <http://www.comreg.ie/fileupload/publications/ComReg12125.pdf>

**IS:** The country is a single interconnection area with one pricing structure and single transit. The cost model is based on historical Costs and the target rate was reached by 4 December 2012.

**IT:** AGCOM has developed a BU-LRIC model for determining IP termination rates, which has been applied from 1st July 2015. Rate in the first semester 2015 is a weighted average between the IP rate determined by the model and a pure LRIC TDM rate. The weights are 66% IP and 34% TDM.

**LI:** Current FTR was decided in 2007. Market analysis and remedies M3 decided in 2010. New FTR decision expected in 2016, based on TD-FDC and Benchmarking. (EFTA Surveillance Authority Recommendation of 13 April 2011 on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EFTA States)

**LT:** Currently prices of fixed termination market are not regulated, but SMP operators apply the same rates as were set previously (0,61 euro cent/min). RRT is finalising its market research and new prices, based on BU-LRAIC, will be set after completion of this analysis. There is no separation between peak and off-peak FTRs

**LU:** Regulation decision 15/186/ILR of 3th February 2015 on FTRs /M3-2007... [RÈGLEMENT 15/186/ILR du 3 février 2015, Portant sur la fixation des plafonds tarifaires pour les prestations de la terminaison d'appel sur divers réseaux téléphoniques publics individuels en position déterminée (Marché 3/2007), consultation nationale et internationale finalisée]

**ME:** Current prices are regulated according to the HCA FDC costing methodology.

**FYROM:** The current prices are calculated according to Top Down LRIC for the incumbent operator and approved by the Agency.

**PT:** ANACOM has set the fixed termination rates by benchmarking against BU pure LRIC prices in Denmark, France, Ireland, Malta, Bulgaria, Austria and Slovakia.

These prices have been in place from 1 October 2013 and they will be replaced by new prices based on the results of the pure LRIC model developed for that purpose.

Based on the referred benchmark, ANACOM set a pure LRIC price per minute of 0.1114 euro cents. In light of MEO's interconnection structure, which is comprised of three different interconnection levels (local, single transit and double transit), there are different prices for each level, but on average the price applied is 0.1114 euro cents.

**RO:** For Telekom RC S.A. (former Romtelecom S.A.) the 0.14 euro cents/min FTR applies irrespective of the interconnection level.

**SK:** No glide path is in use.

**TR:** The FTRs of the incumbent fixed operator is set according to a BU LRIC+ cost model. In addition, these values are close to the costs which are calculated in the model.

## Annex 4 FTR symmetry

The following table emphasises the level of **symmetry** among the operators when interconnection in fixed networks is offered. The information below is directly reported by each NRA explaining its particular situation.

**Table 4**

Country	Symmetry	Comments
AT	YES	
BE	YES	
BG	YES	
CH	YES	Symmetry is ensured on the basis of geographical coverage from a certain point of interconnection (e.g. regional termination is priced the same both ways regardless of actual network hierarchy). Symmetry is evaluated on the basis of average FTRs (i.e. pricing flexibility is left for operators).
CY	YES	The alternative operators' termination rate was set at the incumbent's (CYTA) national rate (0,632 euro cents).
CZ	YES	
DK	YES	Same FTR apply to all 35 price regulated operators, cf. market decisions as of December 18, 2013.
DE	YES	More than 50 alternative fixed network operators (i. e. BT Germany, Telefónica Germany, Verizon, Versatel, Vodafone et al) have applied to have their FTR approved symmetrically, based on a tariff comparison with the approved Telekom Deutschland GmbH FTR.
EE	YES	Symmetry is ensured on the basis of a calculation of a per minute call charge through a 3 minute call duration.
EL	YES	Symmetry applies since 28 May 2014.
ES	YES	The FTR is symmetric for all the operators, since November 2014 (market analysis decision).
FI	PARTIALLY	In Finland there are no price caps on FTRs. FTRs are symmetrical among most of fixed operators.
FR	YES	
HR	YES	Symmetry in fixed network is prescribed for all operators as of the 1 January 2013.
HU	YES	

IE	PARTIALLY	ComReg Decision D12/12 set fixed termination rates at layer one (i.e. ericom's primary). ComReg Decision D12/12 imposed symmetrical blended rate of 0.085 cent per minute for all SMP fixed operators from 1 July 2014. This blended FTR will reduce to 0.072 cent per minute from 1 July 2015. Please refer to Annex1 in ComReg Decision D12/12 at <a href="http://www.comreg.ie/_fileupload/publications/ComReg12125.pdf">http://www.comreg.ie/_fileupload/publications/ComReg12125.pdf</a>
IS	YES	
IT	YES	
LI	NO	There is only one fixed network operator in Liechtenstein: Telecom Liechtenstein AG. National interconnecting partners are MNOs.
LT	YES	FTRs of all fixed operators with SMP are symmetric, i.e. the FTRs are the same irrespective of the number of customers, the difference in network topologies and so on.
LU	PARTIALLY	The regulation defines only a maximal price cap and operators may implement the solution in their own way.
LV	YES	
ME	YES	
FYROM	YES	
MT	YES	Due to national characteristics interconnection is at layer 1. The FTR charge applicable to all those operators having an SMP in the wholesale fixed termination market is on a symmetrical basis.
NL	YES	
NO	YES	Symmetric FTRs are imposed for all SMP operators in Norway.
PL	YES	
PT	YES	Prices applied by operators with SMP in the wholesale markets for call termination on the public telephone network at a fixed location must be symmetric and they were set at the level of 0.1114 euro cents per minute.  With regard to MEO: Local, single and double transit prices were weighted according to traffic volumes and the average price is 0,1114 eurocents.  For the other SMP operators: If the operator offers a pricing structure with several levels of interconnection prices, the applicable termination prices may not exceed the maximum prices established for the local, single and double transit charged by MEO. If the operator decides to offer a simplified pricing structure with only one level of prices, the termination rate may not exceed 0.1114 EUR cents per minute.  All SMP operators shall apply a per second billing system that does not include any set-up fee.
RO	YES	Symmetric FTRs for all SMP operators.
RS	PARTIALLY	Operators have different network topologies and different number of levels of interconnection. Telekom Srbija (incumbent) have 3 levels of interconnection. Other operators have 1 level of interconnection. Other operators have unique FTR, which is calculated as weighted



		average price based on incumbent's FTRs for 3 levels of interconnection and traffic volume.
SE	YES	The incumbent is regulated with a cost orientation obligation, whilst all other operators have an obligation to set fair and reasonable prices. The definition of fair and reasonable is in line (symmetric) with the cost oriented price of the incumbent.
SI	YES	Rates are based on a national coverage layer.
SK	YES	All SMP operators have applied the symmetrical FTRs.
TR	NO	
UK	YES	Termination is regulated only at the point of interconnection closest to the called customer. At this point, BT has rates set via a charge control. All other CPs' rates are required to be set on fair and reasonable terms, and it is presumed that this means rates should be symmetric with the charge controlled rates unless the CP can demonstrate why a higher rate is necessary and in the interests of consumers. Rates for regional and national level interconnection are not regulated.

## Annex 5 Market shares

Table 5 Market shares

	Operator	Number of lines	Total number of lines	Market shares
AT	A1 Telekom Austria	2,150,116	3,271,621	65.70%
	Operator 2	478,152		14.60%
	Operator 3	214,126		6.50%
	Operator 4	79,566		2.40%
	Operator 5	50,155		1.50%
	Operator 6	49,261		1.50%
	Other operators	250,245		7.60%
BE	Proximus	2,700,488	4,532,475	59,6
	Other operators	1,831,987		40,4%
BG	Bulgarian Telecommunication Company	Confidential	Confidential	66.18%
	Telenor Bulgaria	Confidential		14.54%
	Mobitel	Confidential		10.45%
	Blizoo Media and Broadband	Confidential		7.77%
	Other operators	Confidential		1.06%
CH	Swisscom	N/A	N/A	N/A
	Other operators	N/A	N/A	N/A
CY	CYTA	276,059	331,569	83.26%
	PRIMETEL	30,191		9.11%
	CABLENET	23,282		7.02%
	MTN FIXED	2,037		0.61%
CZ	O2 Czech Republic a.s.	Confidential	Confidential	46.7%
	UPC Česká republika s.r.o.	Confidential		9.1%
	Vodafone Czech Republic a.s.	Confidential		6%
	GTS Czech s.r.o.	Confidential		4.5%
	České radiokomunikace a.s.	Confidential		3.7%
	T-Mobile Czech Republic a.s.	Confidential		3.5%
	Other operators	Confidential		26.5%
DE	Telekom Deutschland GmbH	20,660,000	36,890,000	56.0%
	Other operators	16,230,000		44.00%
DK	TDC	756,822	949,349	79,7%
	Other operators	192,527		20,3%
EE	Eesti Telekom	333,063	407,287	81.80%
	Starman	34,857		8.60%

	Elisa	14,066		3.50%
	STV	14,127		3.50%
	Other operators	11,174		2.70%
EL	OTE	2,746,707	4,758,271	57.72%
	FORTHNET	Confidential		Confidential
	HOL	Confidential		Confidential
	WIND	Confidential		Confidential
	Other operators	Confidential		Confidential
ES	Telefónica de España	10,218,956	19,179,861	53.28%
	Vodafone-Ono	2,107,138		10.99%
	Orange	2,016,487		10.51%
	Vodafone	1,833,494		9.56%
	Jazztel	1,761,168		9.18%
	Other operators	1,242,618		6.48%
FI	DNA Oyj	N/A	N/A	13.5%
	Elisa Oyj			39.0%
	TeliaSonera Oyj			23.5%
	Other operators			24.0%
FR	Orange	Confidential	38,807,000	Confidential
	Other operators			
HR	HT	920,541	1,460,728	63.02%
	OPTIMA	154,364		10.57%
	VIPnet	153,512		10.51%
	H1	90,345		6.18%
	Other operators	141,966		9.72%
HU	Magyar Telekom	1,669,145	3,009,264	55.50%
	Invitel	388,768		12.90%
	UPC	489,965		16.30%
	Other operators	461,386		15.30%
IE	Eircom	Confidential	Confidential	44.00%
IS	Siminn	89,014	126,745	70.20%
	Vodafone	37,731		29.80%
IT	Telecom Italia S.p.A.	12,477.390		60.62%
	Wind Telecomunicazioni	2,714.907		13.19%

	Fastweb S.p.A.	2,115.412	20,581,426	10.28%
	Vodafone Omnitel B.V. (including TeleTu S.p.A.)	2,010.861		9.77%
	Other operators	1,262.856		6.14%
LI	Telecom Liechtenstein AG	17,487	17,487	100.00%
LT	TEO LT AB	487,910	532,572	91.60%
	CSC Telecom	10,364		1.90%
	Lietuvos gelezinkeliai	5,442		1.00%
	Other operators	28,856		5.50%
LV	Lattecom	287,584	367,245	78.31%
	CSC Telecom	11,087		3.02%
	Latvijas Dzelzsceļš	6,197		1.69%
	Baltcom TV	11,607		3.16%
	Latvijas Mobilais Telefons	35,051		9.54%
	Other operators	15,719		4.28%
LU	EPT	207,600	271,100	76.58%
	Other operators	63,500		23.42%
ME	Crnogorski Telekom	162,613	165,151	98.5%
	Mtel	2,538		1.5%
FYROM	Makedonski Telekom AD	225,603	383,590	58.8%
	ONE Telecom services	59,266		15.5%
	Robi	24,471		6.4%
	Blizoo	42,763		11.1%
	Other operators	31,487		8.2%
MT	Go plc	153,258	230,962	66.40%
	Melita plc	76,160		33.00%
	Vodafone	495		0.20%
	Ozone	784		0.30%
	SIS	211		0.10%
	Vanilla	54		0.00%
NL	KPN	N/A	N/A	N/A
	Ziggo			
	UPC			
	Tele2			
NO	Telenor	768,496	1,204,994	63.80%
	Ventelo	36,244		3.00%
	Tele2	50,995		4.20%
	Telio	70,422		5.80%
	Other operators	278,837		23.10%
PL	Orange Polska S.A.	Confidential	5,477,447	Confidential

	NETIA	Confidential		Confidential
	Multimedia Polska S.A.	Confidential		Confidential
	Multimedia Polska Poludnie S.A.	Confidential		Confidential
	TK Telekom	Confidential		Confidential
	Other operators	Confidential		Confidential
PT	MEO	Confidential	4,640,507	51.87%
	NOS Group	Confidential		31.90%
	Vodafone	Confidential		11.07%
	Onitelem/Cabovisão	Confidential		4.77%
	Other operators	Confidential		0.38%
RO	TELEKOM RC S.A.	Confidential	4,564,196	Confidential
	RCS&RDS S.A.	Confidential		Confidential
	UPC Romania S.R.L.	Confidential		Confidential
	VODAFONE ROMANIA S.A.	Confidential		Confidential
	Other operators	Confidential		Confidential
RS	Telekom Srbija	2,747,151	2,856,134	96.2%
	Other operators	108,983		3.8%
SE	TeliaSonera	2,708,600	3,779,000	71.70%
	Comhem	337,100		8.90%
	Telenor	250,100		6.60%
	Alltele	58,400		1.50%
	TelaVox	82,900		2.20%
	Other operators	341,900		9.00%
SI	Telekom Slovenije	Confidential	Confidential	57.70%
	Telemach	Confidential		19.20%
	T-2	Confidential		11.40%
	Amis	Confidential		6.00%
	Other operators	Confidential		5.70%
SK	Slovak Telekom*	Confidential	Confidential	84.24%
	Orange Slovensko	Confidential		8.21%
	Swan	Confidential		6.01%
	UPC	Confidential		1.54%
TR	Türk Telekom	10,244,998	12,445,582	82.32%
	TTNet	1,181,714		9.50%
	Superonline	356,495		2.86%
	Turknet	217,858		1.75%
	Other operators	444,518		3.57%
UK	BT	Confidential	33,298,000	Confidential
	TalkTalk	Confidential		Confidential

	Sky	Confidential		Confidential
	Virgin Media	Confidential		Confidential
	Vodafone	Confidential		Confidential
	Other operators	Confidential		Confidential

#### Notes to Table 5

**BG:** Data in the field "Number of lines" refers to the number of fixed telephone lines as of 1st of January 2015.

**CY:** No data exist per layer. CYTA uses Layer 1 interconnection for local and regional coverage and Layer 2 for national coverage. Alternative operators use Layer 2 interconnection. Number of lines as at 31/12/2014.

**CZ:** The data provided is based on the total number of lines at the highest interconnection level. The number of lines is based on figures as of 1 January 2015 – data for the first half of the year 2015 are not yet available.

**DE:** The number of lines is based on figures from 2014. Source: BNetzA Annual Report 2014.

**DK:** lines and markets shares refer to 2013-2014.

**EL:** Data refers to the number of active telephone access lines as at 31.12.2014. The wholesale line rental lines are included in the incumbent's (OTE) lines.

**FI:** Market shares in terms of subscriptions as of 31.12.2014.

**FR:** Total number of lines by the end of 2014.

**IE:** Market share refers to the number of subscriptions as opposed to lines.

**MT:** Data reflects position as at Q1 2015.

**TR:** The number of lines for alternative network operators includes the number of wholesale line rental and VOIP subscribers.

## Annex 6 Average MTR per operator as of 1 July 2015

Table 6

Country	Operator	Average effective prices (€cent)	Subscribers	Country total subscribers	Market Share %
AT	A1Telekom Austria	<b>0.8049</b>	5,400,150	12,937,050	<b>41.74%</b>
	T-Mobile Austria	<b>0.8049</b>	3,936,800		<b>30.43%</b>
	Hutchison Drei Austria	<b>0.8049</b>	3,600,100		<b>27.83%</b>
BE	Proximus	<b>1.1800</b>	<i>confidential</i>	10,111,457	<i>confidential</i>
	Mobistar	<b>1.1800</b>	<i>confidential</i>		<i>confidential</i>
	Base	<b>1.1800</b>	<i>confidential</i>		<i>confidential</i>
BG	Mobitel	<b>0.9715</b>	<i>confidential</i>	<i>confidential</i>	<b>39.78%</b>
	Telenor Bulgaria	<b>0.9715</b>	<i>confidential</i>		<b>35.96%</b>
	BTC	<b>0.9715</b>	<i>confidential</i>		<b>24.27%</b>
CH	Swisscom	<b>6.0038</b>	6,751,000	11,150,050	<b>59.41%</b>
	Sunrise	<b>7.4448</b>	2,432,582		<b>22.39%</b>
	Salt	<b>7.4448</b>	1,966,468		<b>18.20%</b>
CY	Cyta	<b>1.7100</b>	739,398	1,127,305	<b>65.59%</b>
	Primetel	<b>2.9100</b>	41,457		<b>3.68%</b>
	MTN	<b>1.7100</b>	340,000		<b>30.16%</b>
CZ	T-Mobile Czech Republic a.s.	<b>0.9862</b>	<i>confidential</i>	<i>confidential</i>	<b>39.08%</b>
	O2 Czech Republic a.s.	<b>0.9862</b>	<i>confidential</i>		<b>32.48%</b>
	Vodafone Czech Republic a.s.	<b>0.9862</b>	<i>confidential</i>		<b>22.24%</b>
DE	T-Mobile	<b>1.7200</b>	39,465,000	112,397,000	<b>35.11%</b>
	Vodafone	<b>1.7200</b>	30,315,000		<b>26.97%</b>
	E-plus Mobilfunk / Telefónica Germany	<b>1.7200</b>	42,617,000		<b>37.92%</b>
DK	TDC	<b>0.8066</b>	3,121,702	8,263,138	<b>37.78%</b>
	Telia	<b>0.8066</b>	1,952,962		<b>23.63%</b>
	Telenor	<b>0.8066</b>	1,442,104		<b>17.45%</b>
	Hi3G	<b>0.8066</b>	1,090,088		<b>13.19%</b>
EE	Eesti Telekom	<b>1.0000</b>	735,461	1,887,849	<b>38.96%</b>
	Elisa	<b>1.0000</b>	642,100		<b>34.01%</b>
	Tele2	<b>1.0000</b>	510,288		<b>27.03%</b>
EL	Cosmote	<b>1.1030</b>	6,965,266	15,599,760	<b>44.65%</b>
	Vodafone	<b>1.1030</b>	4,748,008		<b>30.44%</b>
	Wind	<b>1.1030</b>	3,874,481		<b>24.84%</b>
ES	TME	<b>1.0900</b>	16,060,259	50,760,771	<b>31.64%</b>
	Vodafone	<b>1.0900</b>	11,546,440		<b>22.75%</b>
	Orange	<b>1.0900</b>	11,430,000		<b>22.52%</b>
	Xfera	<b>1.0900</b>	3,402,372		<b>6.70%</b>
FI	DNA	<b>1.8700</b>	n.a.	9,420,000	<b>24.0%</b>
	Elisa	<b>1.8700</b>	n.a.		<b>40.0%</b>

	TeliaSonera	<b>1.8700</b>	n.a.		<b>35.0%</b>
FR	Orange	<b>0.7800</b>	<i>confidential</i>	77,593,000	<b><i>confidential</i></b>
	SFR	<b>0.7800</b>	<i>confidential</i>		<b><i>confidential</i></b>
	Bouygues Telecom	<b>0.7800</b>	<i>confidential</i>		<b><i>confidential</i></b>
	Free Mobile	<b>0.7800</b>	<i>confidential</i>		<b><i>confidential</i></b>
HR	HT	<b>0.8318</b>	2,079,602	4,454,917	<b>46.68%</b>
	VIPnet	<b>0.8318</b>	1,573,408		<b>35.32%</b>
	Tele2	<b>0.8318</b>	801,907		<b>18.00%</b>
HU	T-Mobile	<b>0.5586</b>	5,346,509	11,540,058	<b>46.33%</b>
	Telenor	<b>0.5586</b>	3,580,880		<b>31.03%</b>
	Vodafone	<b>0.5586</b>	2,612,669		<b>22.64%</b>
IE	Vodafone Ireland Limited	<b>2.6000</b>	1,877,435	4,874,062	<b>38.5%</b>
	Three Ireland Hutchison Limited (formerly Hutchison 3G Ireland Limited)	<b>2.6000</b>	1,542,788		<b>31.7%</b>
	Three Ireland Services (Hutchison) Limited (formerly Telefonica Ireland Limited)	<b>2.6000</b>			
	Meteor Mobile Communications Limited	<b>2.6000</b>	1,006,159		<b>20.6%</b>
	Tesco Mobile Ireland Limited	<b>2.6000</b>	311,932		<b>6.4%</b>
	Lycamobile Ireland Limited	<b>2.6000</b>	119,382		<b>2.4%</b>
IS	Siminn	<b>1.0297</b>	130,252	370,037	<b>35.20%</b>
	Vodafone	<b>1.0297</b>	100,115		<b>27.06%</b>
	Nova	<b>1.0297</b>	123,708		<b>33.43%</b>
	365/Tal	<b>1.0297</b>	12,911		<b>3.49%</b>
IT	Telecom Italia S.p.A.	<b>0.9800</b>	25,324,946	93,200,000	<b>27.2%</b>
	Vodafone Omnitel N.V.	<b>0.9800</b>	25,506,683		<b>27.4%</b>
	Wind Telecomunicazioni S.p.A.	<b>0.9800</b>	21,607,000		<b>23.2%</b>
	H3G S.p.A.	<b>0.9800</b>	10,040,000		<b>10.8%</b>
LI	Salt (Liechtenstein) AG	<b>7.1486</b>	<i>confidential</i>	11,868	<b><i>confidential</i></b>
	Swisscom (Schweiz) AG		<i>confidential</i>		<b><i>confidential</i></b>
	Telecom Liechtenstein AG		<i>confidential</i>		<b><i>confidential</i></b>
LT	Tele2	<b>1.0400</b>	1,797,605	4,173,103	<b>43.08%</b>
	Omnitel	<b>1.0400</b>	1,291,094		<b>30.94%</b>
	Bite Lietuva	<b>1.0400</b>	1,006,824		<b>24.13%</b>
LU	EPT	<b>0.9700</b>	452,100	883,100	<b>51.19%</b>
	Tango	<b>0.9700</b>	285,600		<b>32.34%</b>
	Orange	<b>0.9700</b>	125,500		<b>14.21%</b>
LV	Tele2	<b>1.0500</b>	925,495	2,549,316	<b>36.30%</b>



	Latvijas Mobilais Telefons	<b>1.0500</b>	920,118		<b>36.09%</b>
	Bite Latvija	<b>1.0500</b>	477,554		<b>18.73%</b>
	Zetcom	<b>1.0500</b>	151,964		<b>5.96%</b>
ME	Telenor	<b>1.9000</b>	383,930	1,009,087	<b>38.05%</b>
	Crnogorski Telekom	<b>1.9000</b>	341,645		<b>33.86%</b>
	Mtel	<b>1.9000</b>	283,512		<b>28.10%</b>
FYROM	T Mobile Macedonia	<b>1.4636</b>	1,006,470	2,131,027	<b>47.23%</b>
	ONE Telecommunication services	<b>1.4636</b>	536,533		<b>25.18%</b>
	VIP Macedonia	<b>1.4636</b>	588,024		<b>27.59%</b>
MT	Go plc	<b>0.4045</b>	220,401	554,468	<b>39.75%</b>
	Melita plc	<b>0.4045</b>	81,733		<b>14.74%</b>
	Vodafone	<b>0.4045</b>	242,362		<b>43.71%</b>
	Redtouch fone	<b>0.4045</b>	9,902		<b>1.79%</b>
NL	KPN	<b>1.8610</b>	6,419,000	20,234,000	<b>31.72%</b>
	T-Mobile	<b>1.8610</b>	5,022,000		<b>24.82%</b>
	Vodafone	<b>1.8610</b>	3,900,000		<b>19.27%</b>
NO	Telenor	<b>0.9692</b>	2,964,238	5,913,406	<b>50.13%</b>
	TeliaSonera	<b>0.9692</b>	2,416,596		<b>40.87%</b>
	Ventelo	<b>0.9692</b>	184,244		<b>3.12%</b>
	Lyca	<b>0.9692</b>	145,024		<b>2.45%</b>
PL	Orange Polska S.A.	<b>1.0493</b>	<i>confidential</i>	56,905,306	<b>confidential</b>
	Polkomtel sp. z o.o.	<b>1.0493</b>	<i>confidential</i>		<b>confidential</b>
	P4 sp. z o.o.	<b>1.0493</b>	<i>confidential</i>		<b>confidential</b>
	T-Mobile Polska S.A.	<b>1.0493</b>	<i>confidential</i>		<b>confidential</b>
PT	MEO	<b>1.2700</b>	<i>confidential</i>	16,419,185	<b>47,99%</b>
	VODAFONE	<b>1.2700</b>	<i>confidential</i>		<b>31,69%</b>
	NOS	<b>1.2700</b>	<i>confidential</i>		<b>20,31%</b>
RO	Vodafone Romania S.A.	<b>0.9600</b>	<i>confidential</i>	22,686,641	<b>confidential</b>
	Orange Romania S.A.	<b>0.9600</b>	<i>confidential</i>		<b>confidential</b>
	TELEKOM RMC S.A.	<b>0.9600</b>	<i>confidential</i>		<b>confidential</b>
	RCS & RDS S.A.	<b>0.9600</b>	<i>confidential</i>		<b>confidential</b>
RS	MTS (Telekom Srbija)	<b>2.8483</b>	4,163,584	9,344,977	<b>44.56%</b>
	Telenor	<b>2.8483</b>	3,109,446		<b>33.27%</b>
	Vip mobile	<b>2.8483</b>	2,071,947		<b>22.17%</b>
SE	TeliaSonera	<b>0.814</b>	5,397,600	14,525,000	<b>37.16%</b>
	Tele2	<b>0.814</b>	3,981,900		<b>27.41%</b>
	Telenor	<b>0.814</b>	2,509,600		<b>17.28%</b>
	Hi3G	<b>0.814</b>	1,799,400		<b>12.39%</b>
	Lycamobile	<b>0.814</b>	5,397,600		<b>2.15%</b>
SI	Telekom Slovenije	<b>1.1400</b>	<i>confidential</i>	<i>confidential</i>	<b>53.74%</b>
	Si.mobil	<b>1.1400</b>	<i>confidential</i>		<b>29.62%</b>
	Telemach Mobil	<b>1.1400</b>	<i>confidential</i>		

					13.58%
	T-2	1.1400	confidential		3.05%
SK	Orange Slovensko	1.2260	confidential	confidential	41,03%
	Slovak Telekom	1.2260	confidential		30,60%
	O2 Slovakia	1.2260	confidential		28,37%
TR	Turkcell	0.8346	34,260,000	72,040,000	47.56%
	Vodafone	0.8613	21,140,000		29.34%
	Avea	0.9882	16,640,000		23.10%
UK	EE	0.9431	confidential	84,589,978	confidential
	O2	0.9431	confidential		confidential
	Vodafone	0.9431	confidential		confidential
	H3G	0.9431	confidential		confidential

### Notes to Table 6

**BE:** Subscribers = number of active simcards as of the 1st of January 2015, MVNO excluded

**BG:** Data based on number of mobile voice subscribers (excl. data SIMs and M2M) as of 01.07.2015

**CH:** Subscriber base as of 30.06.2015

**CZ:** CTU regulates MTR without differentiation between "peak" and "off peak" time. Termination for MVNO is carried out by their MNOs for regulated rates. Also total number of SIM cards are provided as of 1st January 2015 - data for the 1st half of the year 2015 are not yet available.

**DK:** All data comes from the first half of 2014. Two operators in "rest of operators" is MVNO, the operators is: Lycamobile and Mundio Mobile - these operators also have a MTR of 6.02 (price in 1/100 of national currency). The rest of the companies is not subject to an MTR (including DLG Tele and Siminn).

**DE:** Current MTR are valid from 01.12.2014 until 30.11.2015. They are preliminary and still subject to phase II investigation.

Number of subscribers are as of 2th quarter 2015. After the merger of Telefónica and E-Plus joint subscriber numbers are reported from 4th quarter 2014.

**EL:** Data refers to registered subscriptions as at 31.12.2014

**HU:** New data are not available. Data as July 2014

**IS:** Subscriber data for 1.7.2015 not available, using data for end of 2014. MTR price for 2015

IT: Individual Subscriber numbers as of December 2014.

**LT:** LT belongs to euro zone from 01/01/2015. MTR was changed to 1.04 euro ct/min. Subscribers at 2015 1<sup>st</sup> Q

**LU:** Price cap based on Pure-LRIC. Regulation Decision 15/191/ILR of 20th of March on MTRs /M7-2007. Règlement 15/191/ILR du 20 mars 2015 portant fixation du plafond tarifaire pour les prestations de la terminaison d'appel vocal sur les réseaux mobiles individuels (Marché 7/2007) ,

**FYROM:** Data for the first quarter of 2015

**MT:** Data reflects position as at end Q1 2015

**NL:** Subscribers 1st January 2015

**NO:** Numbers of subscribers are provided as 31.12.2014. The total number of subscribers according to 1st of July 2015 will not be able before Q3 2015.

In February 2015 The Competition Authority approved the acquisition of Tele2 by TeliaSonera. The acquisition included subscribers from both Network Norway and Tele2. Subscribers from TeliaSonera, Network Norway and Tele2 are therefore merged in the figures.

A third MNO, ICE, has entered the market, but offers mobile subscription based on service provider agreement from July 2015.

**PL, RS, SE:** Subscribers as of 31.12.2014.

**TR:** Number of subscribers is filled according to the first quarter of 2015



## Annex 7 Average wholesale termination revenues per country (euro cent)

### Notes to figure 16

**BE:** Limited to national terminating traffic

**BG:** Calculated based on revenues from traffic originated from national fixed networks and terminated in mobile networks during 2014 and the relevant traffic. Excluded are fixed-to-mobile calls when both the fixed and the mobile network are owned and run by the same operator.

**CH, HR:** The data refers to the whole year 2014.

**DK:** There is no setup fee, thereby the average revenue per min is 6.68 (1/100 of national currency). There is no data for the total MTR revenue in Denmark

This revenue and minutes include only fixed-to-mobile calls, as indicated in the past (i.e. as we have done it in the previous years). Please note that MTRs for the year 2014 were not based on pure BU-LRIC model and therefore were higher than set for the year 2015 (see HAKOM's data submitted in previous reports).

**HU:** Data of 2014 are not yet available.

**LT:** Data provided is for the whole 2014. Lithuanian national currency is Euro from 01/01/2015, but because data provided for 2014, revenues is still in old national currency Litas (1 Euro = 3.4528 Litas)

**LU:** Data provided is for 2014 and includes all national and international calls to mobile, except mobile to mobile own network.

**ME:** Data are for calls originated from national operators and from abroad. MTR for calls that are originated from abroad are not regulated. MTR are changed from 01. November 2014 for national calls (fixed and mobile)

**FYROM:** Mobile to mobile and fixed to mobile revenue included. For fixed to mobile calls only the values are: 553.369 € and 30.837.455 min.

**NO:** The termination rate has been 16 øre (national currency = 1.86 Eurocent) in 2014 and until 30.06.2015

**RO:** MTRs changed in April 2014.

**RS:** Data provided is for 2014 and includes only national fixed-to-mobile calls. Revenue and traffic do not include fixed-to-mobile calls when both the fixed and the mobile network are owned and run by the same operator.

**SI:** Including international termination. Self-supply is not included!

MTR revenues and minutes include also traffic terminated on premium numbers, numbers for tele voting, mass calling, and short numbers.

**TR:** Total MTR minutes includes only calls that originates and terminates within Turkey. In the table above total MTR revenues and total MTR minutes include data of the whole 2014.

## Annex 8 Regulatory model implemented to calculate MTRs

Table 7

Jan-15	COST ACCOUNTING MODEL			GLIDE PATH in €cent				
	Model	Rate status	When a tariff adopted by a final decision and meeting the standards of the TR Recommendation has been or will be firstly applied?	Period 1 - From 01/07/2015 until 31/12/2015	Period 2 - From 01/01/2016 until 30/06/2016	Period 3 - From 01/07/2016 until 31/12/2016	Period 4 - From 01/01/2017 until 30/06/2017	Period 5 - From 01/07/2017 until 31/12/2017
AT	BU-LRIC	adopted		0.8049				
BE	BU-LRIC	adopted		1.1800				
BG	Pure BU LRIC	adopted	01/07/2013	0.9715				
CH								
CY	Top Down LRIC	adopted						
CZ	pure BU-LRIC	adopted	01/07/2013					
DE	BU-LRAIC+	notified		1.7200	1.6600			
DK	BU-LRIC	adopted		0.8066	0.7262			
EE	Benchmark	adopted	25/03/2014	1.0000				
EL	BU LRIC	adopted	01/01/2013	1.1030				

<b>ES</b>	BU LRIC		01/07/2013	1.09	1.09	1.09	1.09	1.0900
<b>FI</b>	other	adopted		1,87 and 1,25	1.2500	1.2500	1.2500	1.2500
<b>FR</b>	BU LRIC	adopted	01/01/2013	0.7800	0.76	0.7600	0.7400	0.7400
<b>HR</b>	Pure BU LRIC	adopted		0.8320				
<b>HU</b>	BU-LRIC	adopted	01.04.2015	0.5586	0.5586	0.5586		
<b>IE</b>	other			2.6000				
<b>IS</b>	Benchmark	adopted		1.0297	0.9484			
<b>IT</b>	BU-LRIC	notified	01/07/2013	0.9800	0.9800	0.9800	0.9800	0.9800
<b>LT</b>	Benchmarking BU-LRIC	adopted	01/08/2014	1.0400				
<b>LI</b>	Benchmarking	adopted		7.3487				
<b>LU</b>	Pure BU-LRIC	adopted	01/04/2015	0.9700	0.9700	0.9700		
<b>LV</b>	Benchmark BU-LRIC	adopted	01/07/2014	1.0500	1.0500			
<b>ME</b>	HCA FDC	adopted		1.9000				
<b>FYROM</b>	BU LRAIC+							
<b>MT</b>	Pure BU-LRIC	adopted		0.4045	0.4045			
<b>NL</b>	BULRAIC+			1.0190				

<b>NO</b>	BU-LRIC	adopted	01/07/2015	0.9692	0.8758	0.8758	0.7590	0.7590
<b>PL</b>	Pure BU LRIC	adopted	01/07/2013	1.0493	1.0493	1.0493	1.0493	1.0493
<b>PT</b>	BU LRIC	adopted	31/12/2012	0.8300	0.8300			
<b>RO</b>	Pure BU LRIC	adopted	01/04/2014	0.9600				
<b>RS</b>	Benchmarking			2.8483				
<b>SE</b>	BU LRIC	adopted	01/07/2014	0.8140	0.8140			
<b>SI</b>	Pure BU LRIC	adopted	01/09/2014	1.1400	1.1400	1.1400	1.1400	1.1400
<b>SK</b>	Pure BU LRIC	adopted	01/08/2013	1.2260				
<b>TR</b>	BU LRAIC+							
<b>UK</b>	BU LRIC	adopted	01/04/2013	0.9431	0.8273	0.7115	0.7073	0.7031

**Notes to Table 7:**

**BG:** With Decision 135 from 14 February 2013 CRC approved cost-oriented mobile termination rates based on Pure Bu-LRIC model as follows:

from 01/07/2013 - 0.023 BGN/minute

from 01/01/2014 - 0.020 BGN/minute

from 01/01/2015 - 0.019 BGN/minute

No MTRs peak/off-peak differentiation

At the moment the CRC is in process of updating the BULRIC model and intends to notify it in 2016.

**CH:** MTRs are not regulated / there is no glide path.

**CY:** Please note that a new Notification procedure has been completed and new Decisions are to be soon issued. In the Decisions to be adopted, all mobile operators (MVNO and MNOs) are regulated and the rate imposed is based on the E.U. Benchmarking BU LRIC. This regulation will be in force until end of 2015.

**CZ:** CTU does not apply any glide path mechanism for time period 01/07/2015 - 30/12/2017. According to last price regulation level of MTR has been set up on 0.27 CZK per minute for all SMP-operators on relevant market no. 7. CTU currently doesn't assume any changes for time period 01/07/2015 - 30/12/2017. Regulated MTR has been calculated in accordance with Recommendation 2009/369/ES. Market shares of all operators correspond to date as of 1st January 2015.

**DE:** No glide path regulation. Current MTR (as indicated in Period 1) are valid from 01.12.2014 until 30.11.2015. Adjustments in the model lead to MTR as indicated in in period 2, which are valid from 01.12.2015. The decision is preliminary and still subject to phase II investigation.

**ES:** The final decision and meeting the standards of the TR Recommendation has been applied on 10th May 2012 but the MTR of the BULRIC model came into force on 1/7/2013. The methodology used by CNMC includes wholesale commercial costs directly related to the provision of the wholesale termination service to third parties.

**FI:** FICORA issued new decisions concerning significant market power in the mobile voice call termination markets on 10 August 2015. FICORA has, for the first time, set a cost-oriented maximum price for MTRs. The MTR 1.25 will come into effect on 1th of December 2015. The cost-oriented maximum price for MTRs has been calculated based on FDC approach.

**HR:** Decision on MTR's was issued in June 2013 when HAKOM was not obliged to notify the final decision to the EC as Croatia was not the EU member. MTR's have been based on pure BU-LRIC model since January 1, 2015. In 2015, cost model has to be updated meaning that the decision on new prices will be notified to the Commission. MNOs are obliged to provide HAKOM with the necessary information to update the cost model and complete data is expected to be received by the end of September 2015. After receiving the data, model will be updated and new MTRs for the period covered by this market analysis will be calculated. HAKOM will then conduct public consultation on draft decision regarding new MTR's and notify the decision to the EC. Taking into account the whole procedure, HAKOM plans to notify abovementioned decision in January or February 2016. Please note that MTRs are regulated only for the calls originated on A-numbers belonging to the EU/EEA operators and terminated into the individual mobile networks in Croatia.

**IE:** • Please note that in December 2012 Vodafone issued appeal proceedings with respect to ComReg's MTR decision ([http://www.comreg.ie/\\_fileupload/publications/ComReg12125.pdf](http://www.comreg.ie/_fileupload/publications/ComReg12125.pdf) (ComReg Document 12/125)).

- The appeal was heard in the high Court in May 2013. On 17 August the Order of the High Court included a provision for a maximum weighted average MTR of 2.60 cent per minute until the final determination of the Appeal or further order.

- On 21 November 2013, the High Court refused to grant any stay on its Order of 17 October 2013.

The High Court also provided a further statement of reasons for its decision to postpone any ruling on Vodafone's challenge to the validity of ComReg's choice of pure LRIC as the relevant cost standard for regulating MTRs. In addition, the High Court clarified that the maximum rate of 2.60 cent per minute referred to in its Order of 17 October 2013 applies from 1 July 2013.



a. Judgment of the Irish High Court dated 14 August 2013

<http://www.courts.ie/judgments.nsf/6681dee4565ecf2c80256e7e0052005b/005d4340da18896480257bc7003cd090?OpenDocument&Highlight=0.vodafone>

b. ComReg Information Notice 13/80: <http://www.comreg.ie/fileupload/publications/ComReg1380.pdf>

c. ComReg Information Notice 13/97: <http://www.comreg.ie/fileupload/publications/ComReg1397.pdf>

d. ComReg Information Notice 13/97a:

[http://www.comreg.ie/\\_fileupload/publications/ComRegHCO1397a1.pdf](http://www.comreg.ie/_fileupload/publications/ComRegHCO1397a1.pdf)

Please also note that the High Court judgment is currently under appeal to the Supreme Court and note that the High Court refused to grant any stay on its Order of 17 October 2013 (i.e. refused to grant any stay on the application of the 2.60 cent MTR) pending the outcome of the Supreme Court appeal. In this regard, please refer to:

e. ComReg Information Notice 13/99 <http://www.comreg.ie/fileupload/publications/ComReg1399.pdf>

f. ComReg Information Notice 13/108 <http://www.comreg.ie/fileupload/publications/ComReg13108.pdf>

**IS:** Benchmark for 2016 currently under National Consultation. Benchmark for 2017 will be calculated mid 2016

**LT:** There was a rate calculated and based on Benchmarking methodology in 2014. Currently RRT starts new mobile termination market research, Benchmarking methodology potentially will be used again, and rate will be recalculated.

**PT:** By a decision approved in April 30, 2012, ANACOM set a glide-path for the evolution of the MTR in Portugal. The MTR that was set was in full accordance with the EC Recommendation, as it was based on a pure LRIC model. The glide-path reached the pure LRIC value by 31 December 2012, with an MTR of 1.27 eurocents per minute.

A new decision regarding market analysis on the mobile termination markets has been approved in 06.08.2015. The price control obligation defined new MTR (applied in accordance with EC Recommendation on Termination rates - BU-LRIC) of 0.83 eurocents per minute until 30.06.2016. From 0.1.07.2016 and from 01.07.2017 the MTR corresponds to the results of the model for those years adapted in accordance with the inflation rate.

**RS:** Price of 3.43 RSD is effective from 01/01/2015, until new RATEL's decision.

**SK:** RU has not applied any glide path.

**TR:** The MTR values effective from the date 01.07.2013 are close to the values calculated in cost model for the mobile operator of highest market share. For the other two mobile operators a constant asymmetric regulation ratio is applied with respect to the operator having highest market share. Moreover, ICTA does not regulate MTRs via glide path, in general MTRs are revised annually.

**UK:** Note that Ofcom uses financial year (APR to APR) glide paths for MTRs. Where the above periods cross an Ofcom glide path period, we have taken the average for the above period.

## Annex 9 SMS TR per operator as of 1 July 2015

Table 8

Country	Operator	SMS TR (€cent)		Subscribers		Market share
		<i>per operator</i>	<i>WA per country</i>	<i>per operator</i>	<i>Total per country</i>	
AT	A1Telekom Austria	<i>n.a.</i>	<b>3.11</b>	5,400,150	12,937,050	<b>41.74%</b>
	T-Mobile Austria	<i>n.a.</i>		3,936,800		<b>30.43%</b>
	Hutchison Drei Austria	<i>n.a.</i>		3,600,100		<b>27.83%</b>
BE	Proximus	4.96	<b>4.96</b>	<i>confidential</i>	10,111,457	<i>confidential</i>
	Mobistar	4.96		<i>confidential</i>		<i>confidential</i>
	Base	4.96		<i>confidential</i>		<i>confidential</i>
BG	Mobiltel	<i>confidential</i>	<b>confidential</b>	<i>confidential</i>	<i>confidential</i>	<b>39.78%</b>
	Telenor Bulgaria	<i>confidential</i>		<i>confidential</i>		<b>35.96%</b>
	BTC	<i>confidential</i>		<i>confidential</i>		<b>24.27%</b>
CH	Swisscom	<i>confidential</i>	<b>4.8956</b>	6,751,000	11,150,050	<b>59.41%</b>
	Sunrise	<i>confidential</i>		2,432,582		<b>22.39%</b>
	Salt	<i>confidential</i>		1,966,468		<b>18.20%</b>
CY	Cyta	0.5500	<b>0.6023</b>	739,398	1,127,305	<b>65.59%</b>
	Primetel	0.7300		41,457		<b>3.68%</b>
	MTN	0.6800		340,000		<b>30.16%</b>
CZ	T-Mobile Czech Republic a.s.	<i>confidential</i>	<b>confidential</b>	<i>confidential</i>	<i>confidential</i>	<b>39.08%</b>
	O2 Czech Republic a.s.	<i>confidential</i>		<i>confidential</i>		<b>32.48%</b>
	Vodafone Czech Republic a.s.	<i>confidential</i>		<i>confidential</i>		<b>22.24%</b>
DE	T-Mobile	<b>n.a.</b>	<b>n.a.</b>	39,465,000	112,397,000	<b>35.11%</b>
	Vodafone	<b>n.a.</b>		30,315,000		<b>26.97%</b>
	E-plus Mobilfunk / Telefónica Germany	<b>n.a.</b>		42,617,000		<b>37.92%</b>
DK	TDC	0.1487	<b>0.1487</b>	3,121,702		<b>37.78%</b>

	Telia	0.1487		1,952,962	8,263,138	23.63%
	Telenor	0.1487		1,442,104		17.45%
	Hi3G	0.1487		1,090,088		13.19%
EE	Eesti Telekom	2.6000	2.2948	735,461	1,887,849	38.96%
	Elisa	2.1000		642,100		34.01%
	Tele2	2.1000		510,288		27.03%
EL	Cosmote	3.0000	3.0000	6,965,266	15,599,760	44.65%
	Vodafone	3.0000		4,748,008		30.44%
	Wind	3.0000		3,874,481		24.84%
ES	TME	2.7000	2.7261	16,060,259	50,760,771	31.64%
	Vodafone	2.4000		11,546,440		22.75%
	Orange	3.1000		11,430,000		22.52%
	Xfera	2.7000		3,402,372		6.70%
FI	DNA	<i>confidential</i>	<i>confidential</i>	N.A.	9,420,000	24.0%
	Elisa			N.A.		40.0%
	TeliaSonera			N.A.		35.0%
FR	Orange	1.0000	1.0000	<i>confidential</i>	77,593,000	<i>confidential</i>
	SFR	1.0000		<i>confidential</i>		<i>confidential</i>
	Bouygues Telecom	1.0000		<i>confidential</i>		<i>confidential</i>
	Free Mobile	1.0000		<i>confidential</i>		<i>confidential</i>
HR	HT	<i>n.a.</i>	<i>n.a.</i>	2,079,602	4,454,917	46.68%
	VIPnet	<i>n.a.</i>		1,573,408		35.32%
	Tele2	<i>n.a.</i>		801,907		18.00%
HU	T-Mobile	4.5737	4.5737	5,346,509	11,540,058	46.33%
	Telenor	4.5737		3,580,880		31.03%
	Vodafone	4.5737		2,612,669		22.64%
IE	Vodafone Ireland Limited	3.17	3.17	1,877,435		38.5%
	Three Ireland Hutchison Limited (formerly Hutchison 3G Ireland Limited)	3.17		1,542,788		31.7%

	Three Ireland Services (Hutchison) Limited (formerly Telefonica Ireland Limited)	3.17		1,029,010	4,874,062	21.0%
	Meteor Mobile Communications Limited	3.17		1,006,159		20.6%
	Tesco Mobile Ireland Limited			311,932		6.4%
	Lycamobile Ireland Limited	3.17		119,382		2.4%
IS	Siminn	2.5032	2.5032	132,556	365,010	36.32%
	Vodafone	2.5032		96,578		26.46%
	Nova	2.5032		119,453		32.73%
	365/Tal	2.5032		13,686		3.75%
IT	Telecom Italia S.p.A.	confidential	3.2781	25,324,946	93,200,000	27.2%
	Vodafone Omnitel N.V.	confidential		25,506,683		27.4%
	Wind Telecomunicazioni S.p.A.	confidential		21,607,000		23.2%
	H3G S.p.A.	confidential		10,040,000		10.8%
LI	Salt (Liechtenstein) AG	confidential	5.0709	confidential	11,868	confidential
	Swisscom (Schweiz) AG	confidential		confidential		confidential
	Telecom Liechtenstein AG	confidential		confidential		confidential
LT	Tele2	0.7250	0.8864	1,797,605	4,173,103	43.08%
	Omnitel	0.7250		1,291,094		30.94%
	Bite Lietuva	1.4500		1,006,824		24.13%
LU	EPT	n.a.	n.a.	452,100	883,100	51.19%
	Tango	n.a.		285,600		32.34%
	Orange	n.a.		125,500		14.21%
LV	Tele2	2.1300	2.1300	925,495	2,549,316	36.30%
	Latvijas Mobilais Telefons	2.1300		920,118		36.09%
	Bite Latvija	2.1300		477,554		18.73%
ME	Telenor	2.200	2.200	383,930	1,009,087	38.05%
	Crnogorski Telekom	2.200		341,645		33.86%

	Mtel	2.200		283,512		<b>28.10%</b>
<b>FYROM</b>	T Mobile Macedonia	0.8131	<b>0.8131</b>	1,006,470	2,131,027	<b>47.23%</b>
	ONE Telecommunication services	0.8131		536,533		<b>25.18%</b>
	VIP Macedonia	0.8131		588,024		<b>27.59%</b>
<b>MT</b>	Go plc	1.8300	<b>1.7767</b>	220,401	554,468	<b>39.75%</b>
	Melita plc	1.5600		81,733		<b>14.74%</b>
	Vodafone	1.8000		242,362		<b>43.71%</b>
<b>NL</b>	KPN	5.6000	<b>5.6000</b>	6,419,000	20,234,000	<b>31.72%</b>
	T-Mobile	5.6000		5,022,000		<b>24.82%</b>
	Vodafone	5.6000		3,900,000		<b>19.27%</b>
<b>NO</b>	Telenor	4.0900	<b>4.0900</b>	2,964,238	5,913,406	<b>50.13%</b>
	TeliaSonera	4.0900		2,416,596		<b>40.87%</b>
	Ventelo	4.0900		184,244		<b>3.12%</b>
	Lyca	4.0900		145,024		<b>2.45%</b>
<b>PL</b>	Orange Polska S.A.	1.2200	<b>1.2200</b>	<i>confidential</i>	56,905,306	<b>confidential</b>
	Polkomtel sp. z o.o.	1.2200		<i>confidential</i>		<b>confidential</b>
	P4 sp. z o.o.	1.2200		<i>confidential</i>		<b>confidential</b>
	T-Mobile Polska S.A.	1.2200		<i>confidential</i>		<b>confidential</b>
<b>PT</b>	MEO	<i>confidential</i>	<b>1.2700</b>	<i>confidential</i>	16,419,185	<b>47,99%</b>
	VODAFONE	<i>confidential</i>		<i>confidential</i>		<b>31,69%</b>
	NOS	<i>confidential</i>		<i>confidential</i>		<b>20,31%</b>
<b>RO</b>	Vodafone Romania S.A.	2.6111	<b>2.6565</b>	<i>confidential</i>	22,686,641	<b>confidential</b>
	Orange Romania S.A.	2.7142		<i>confidential</i>		<b>confidential</b>
	TELEKOM RMC S.A.	2.6323		<i>confidential</i>		<b>confidential</b>
	RCS & RDS S.A.	2.5642		<i>confidential</i>		<b>confidential</b>
<b>RS</b>	MTS (Telekom Srbija)	1.6600	<b>1.6600</b>	4,163,584	9,344,977	<b>44.56%</b>
	Telenor	1.6600		3,109,446		<b>33.27%</b>
	Vip mobile	1.6600		2,071,947		<b>22.17%</b>
<b>SE</b>	TeliaSonera	3.2260	<b>3.2260</b>	5,397,600	14,525,000	<b>37.16%</b>
	Tele2	3.2260		3,981,900		<b>27.41%</b>

	Telenor	3.2260		2,509,600		<b>17.28%</b>
	Hi3G	3.2260		1,799,400		<b>12.39%</b>
	Lycamobile	3.2260		5,397,600		<b>2.15%</b>
SI	Telekom Slovenije	Bill & Keep	Bill & Keep	<i>confidential</i>	<i>confidential</i>	<b>53.74%</b>
	Si.mobil			<i>confidential</i>		<b>29.62%</b>
	Telemach Mobil			<i>confidential</i>		<b>13.58%</b>
	T-2			<i>confidential</i>		<b>3.05%</b>
SK	Orange Slovensko	2.5000	2.500	<i>confidential</i>	<i>confidential</i>	<b>41,03%</b>
	Slovak Telekom	2.5000		<i>confidential</i>		<b>30,60%</b>
	O2 Slovakia	2.500		<i>confidential</i>		<b>28,37%</b>
TR	Turkcell	0.1436	0.1466	34,260,000	72,040,000	<b>47.56%</b>
	Vodafone	0.1436		21,140,000		<b>29.34%</b>
	Avea	0.1569		16,640,000		<b>23.10%</b>
UK	EE	<i>confidential</i>	2.681	<i>confidential</i>	84,589,978	<i>confidential</i>
	O2	<i>confidential</i>		<i>confidential</i>		<i>confidential</i>
	Vodafone	<i>confidential</i>		<i>confidential</i>		<i>confidential</i>
	H3G	<i>confidential</i>		<i>confidential</i>		<b>10.18%</b>

**Notes at Table 8:**

**AT:** Due to lack of data the TR is calculated on the basis of average revenue per SMS from the year 2013.

**BE:** Subscribers = number of active simcards as of the 1st of January 2015, MVNO excluded

**CZ:** Market shares of all operators as of 1st January 2015.

**DE:** Number of subscribers are as of 2th quarter 2015. After the merger of Telefónica and E-Plus joint subscriber numbers are reported from 4th quarter 2014.

SMS call termination rates are not regulated in Germany.

**DK:** All mobile companies are covered by the same obligations on SMS Call Termination

All data from the first half of 2014.

**EL:** Data refers to registered subscriptions as at 31.12.2014

**HU:** New data are not available. Data as July 2014

SMS termination rate in national currency has not changed, only the HUF / Eur exchange rate has changed.

**IT:** Individual Subscriber numbers as of December 2014

**LI:** Salt (Liechtenstein) AG: "We do not charge MT-SMS and in all AA.19 contract the price is 0.0€ therefore we do not have a price list."

Telecom Liechtenstein AG: "SMS interworking fee is an average value and confidential"

**LU:** No data available as not regulated.

**ME:** SMS termination rates are valid only for termination of SMS's that originated from national operators

**MT:** Data reflects as at Q1 2015 (January - March 2015)

**NL:** The TR is the last known commercially agreed SMS-termination rate.

**SE:** PTS does not monitor the SMS wholesale termination rates. The current reference offers indicates a termination rate of SEK 0.30 (as reported above). However, statistics shows that the average retail revenue per sent SMS was SEK 0.16 in 2014, clearly indicating that a wholesale level of SEK 0.30 is too high OR that the revenue from SMS termination has a net value of close to zero in the market, e.g. an SMS sent is often met by a reply from the receiver.

**SI:** SMS termination rates are not regulated. Operators apply "bill and keep" system.

**RS:** The operators of mobile telephony in Serbia applied termination fee of 2 dinars per message for SMS traffic from 01.06.2015.

## Annex 10 Abbreviations and Exchange rates

Table 9 – Abbreviations

<b>AT</b>	Austria
<b>BE</b>	Belgium
<b>BG</b>	Bulgaria
<b>CH</b>	Switzerland
<b>CY</b>	Cyprus
<b>CZ</b>	Czech Republic
<b>DK</b>	Denmark
<b>DE</b>	Germany
<b>EE</b>	Estonia
<b>EL</b>	Greece
<b>ES</b>	Spain
<b>FI</b>	Finland
<b>FR</b>	France
<b>HR</b>	Croatia
<b>HU</b>	Hungary
<b>IE</b>	Ireland
<b>IS</b>	Iceland
<b>IT</b>	Italy
<b>LI</b>	Liechtenstein
<b>LT</b>	Lithuania
<b>LV</b>	Latvia
<b>LU</b>	Luxembourg
<b>ME</b>	Montenegro
<b>FYROM</b>	the former Yugoslav Republic of Macedonia
<b>MT</b>	Malta
<b>NL</b>	Netherlands
<b>NO</b>	Norway
<b>PL</b>	Poland
<b>PT</b>	Portugal
<b>RO</b>	Romania
<b>RS</b>	Serbia
<b>SE</b>	Sweden
<b>SI</b>	Slovenia
<b>SK</b>	Slovakia
<b>TR</b>	Turkey
<b>UK</b>	United Kingdom

Table 10 – Exchange Rates<sup>12</sup>

<b>COUNTRY</b>	<b>1 EURO</b>
<b>BG</b>	1.96
<b>CH</b>	1.04
<b>CZ</b>	27.38
<b>DK</b>	7.46
<b>HR</b>	7.57
<b>HUF</b>	306.10
<b>IS</b>	147.62
<b>LI</b>	1.04
<b>FYROM</b>	61.50
<b>NO</b>	8.56
<b>PL</b>	4.09
<b>RO</b>	4.44
<b>RS</b>	120.42
<b>SE</b>	9.30
<b>TR</b>	3.00
<b>UK</b>	0.72

<sup>12</sup> ECB website: <http://sdw.ecb.europa.eu/browseSelection.do?DATASET=0&FREQ=A&node=2018794>  
For IS at <http://www.cb.is/exchange-rate/>.



**Annex 11 Glossary**

<b>A(s)</b>	Simple average
<b>A(w)</b>	Weighted average
<b>FTR</b>	Fixed Termination Rate
<b>MTR</b>	Mobile terminate rate
<b>NRA</b>	National Regulatory Authority
<b>SMS</b>	Short Message Service
<b>TR</b>	Termination Rate
<b>TD</b>	Top Down
<b>BU</b>	Bottom Up
<b>LRIC</b>	Long Run Incremental Cost
<b>LRAIC</b>	Long Run Average Incremental Cost
<b>FAC</b>	Fully Allocated Cost
<b>CCA</b>	Current Cost Accounting
<b>HCA</b>	Historical Cost Accounting
<b>FDC</b>	Fully Distributed Cost