

Termination rates at European level

January 2016

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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:

- wholesale 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 January 2016, referring – if not differently indicated – to data as of 1st January 2016. It includes rates from the thirty six (36) NRAs¹ that provided responses to our request.

As of January 2016, this is the situation regarding TRs in Europe:

- The FTR simple average of incumbents at the European level (all 36 countries) stands at 0.29 eurocents per minute for Layer 1. The average for Layer 2 stands at 0.43 and for Layer 3 at 0.43 eurocents per minute.
- The FTR simple average of European Union incumbents operating at Layer 1 stands at 0.26 eurocents per minute. The average for Layer 2 stands at 0.21 and for Layer 3 at 0.35 eurocents per minute.
- The MTR simple average (A(s)) at the European level (all 36 countries) stands at 1.41 eurocents per minute, whereas the weighted average (A(w)) at European level is estimated at 1.17 eurocents per minute.
- The MTR A(s) at the EU level (only EU member states) stands at 1.06 eurocents per minute, whereas A(w) at EU level is estimated at 1.11 eurocents per minute.
- The SMS TR A(s) at the European level is 2.57 eurocents per SMS, whereas A(w) is reported to be 2.25 eurocents per SMS.

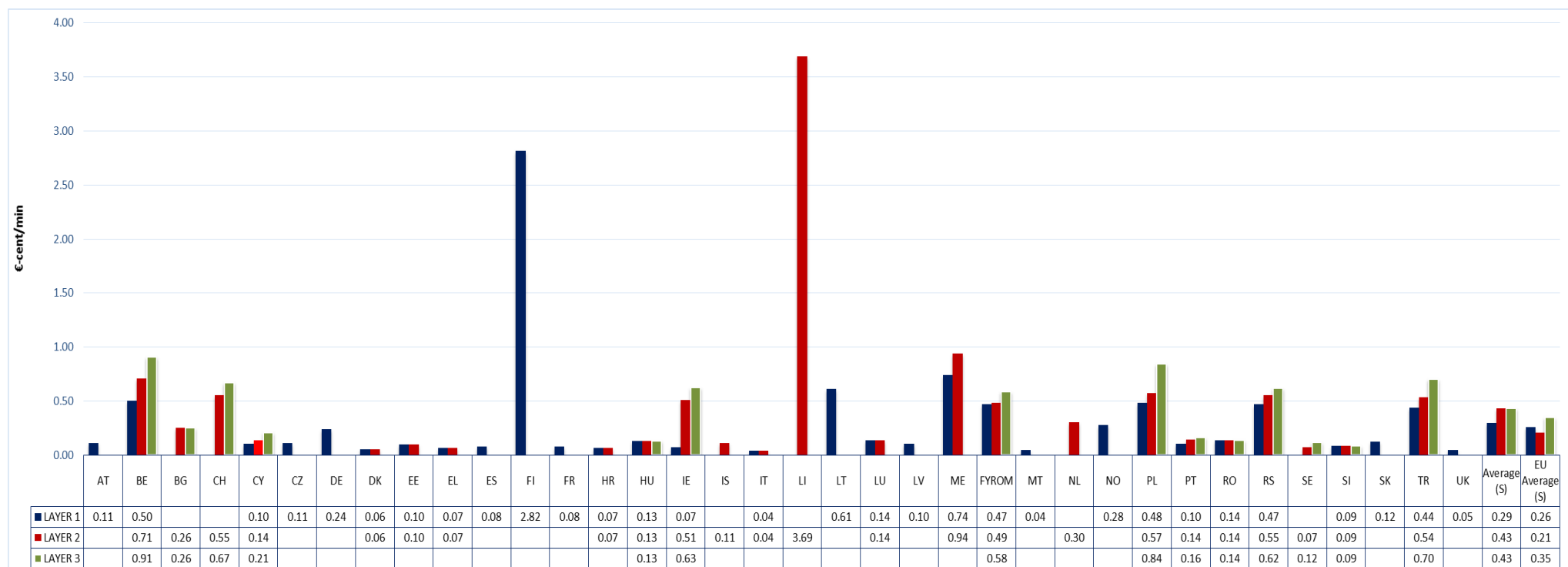
¹ 28 EU member states plus 4 EFTA states (Switzerland, Iceland, Norway and Liechtenstein) and 4 candidate states Montenegro, FYROM, Serbia and Turkey.

- 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 (Q4 2015) was used for the calculation of MTRs and SMS TRs. The exchange rates used are reported in [Annex 8](#).

Overview of incumbents' fixed termination rates per country and layer – January 2016 (Euro cents per minute of service)

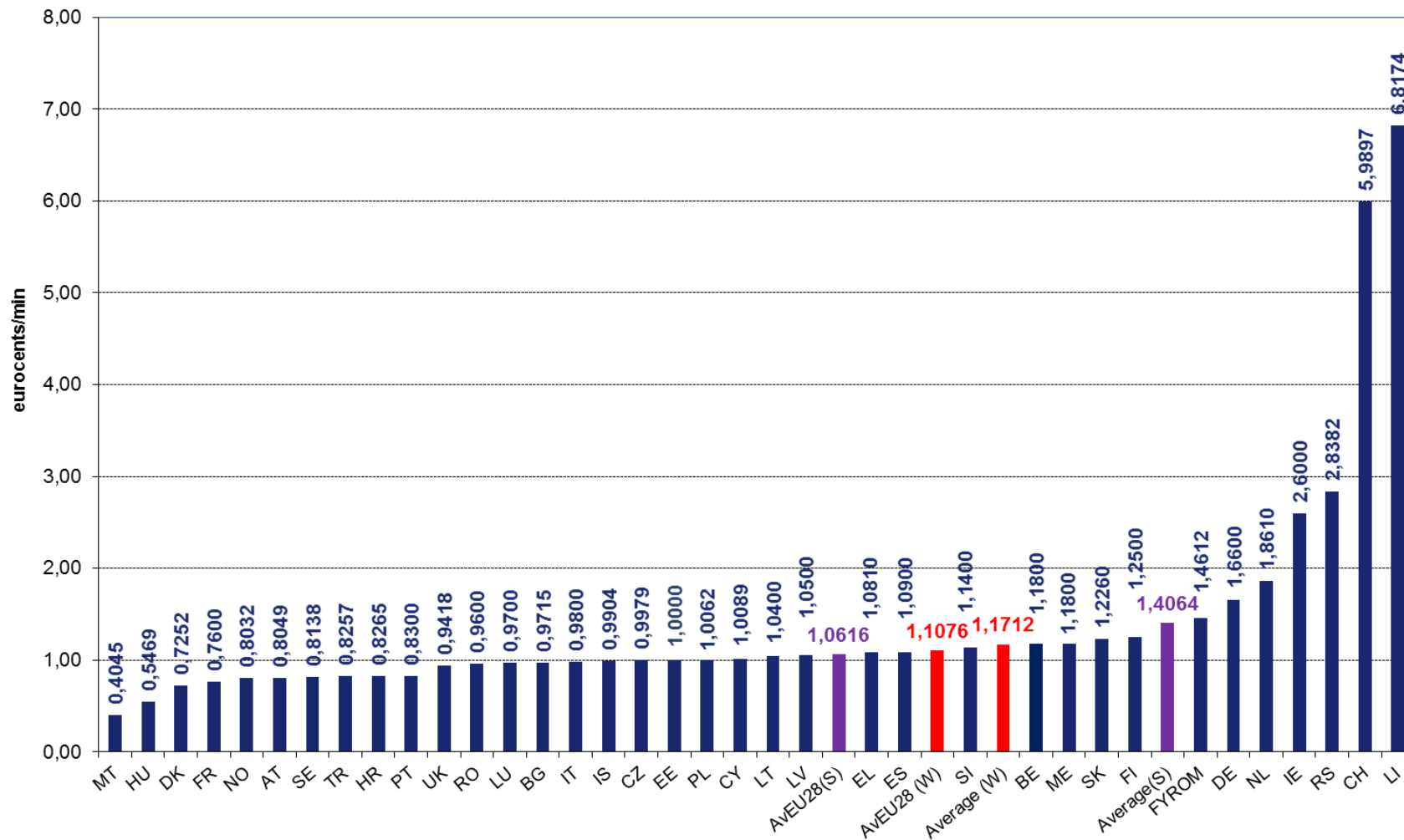
Figure 1 FTRs



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](#).

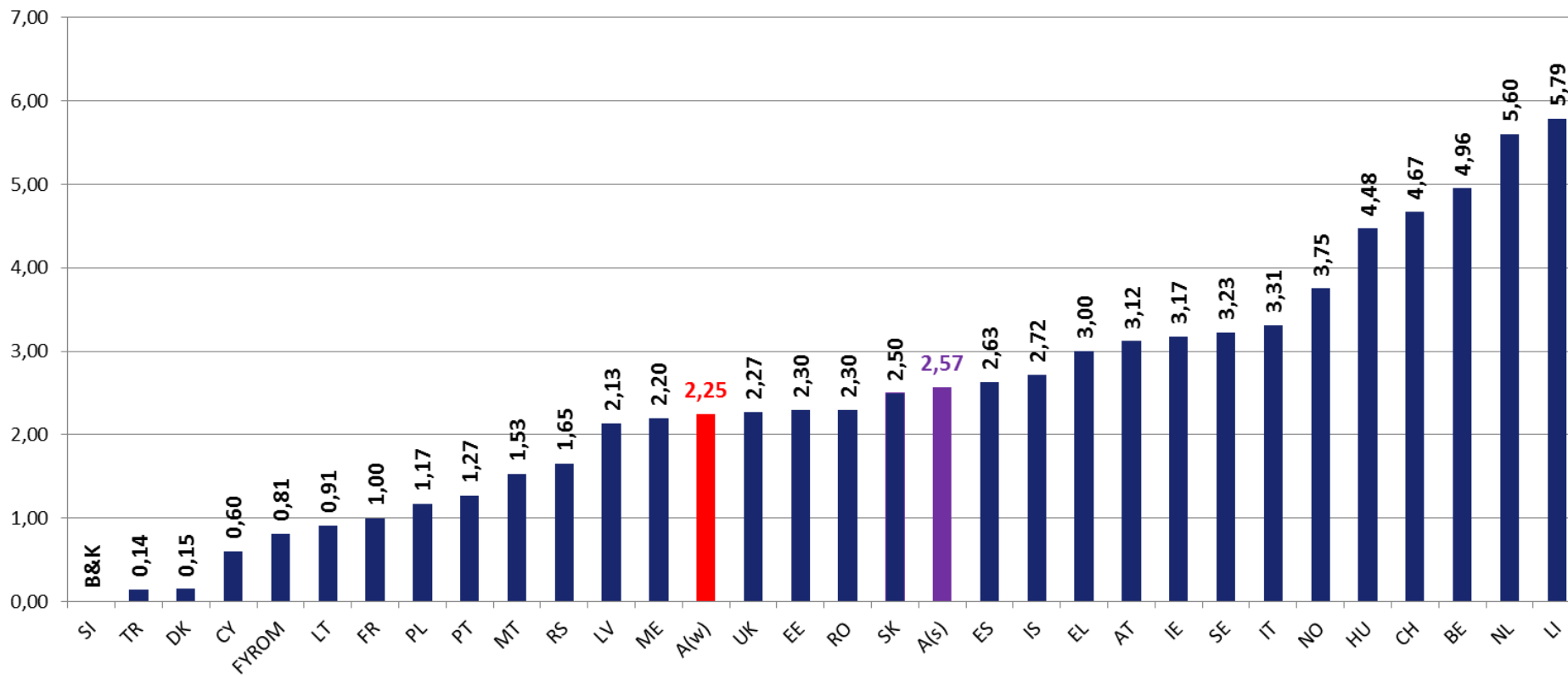
MTR per country – January 2016 (Euro cents per minute of service)

Figure 2 MTR



SMS TR per country – January 2016 (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 incumbents' 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

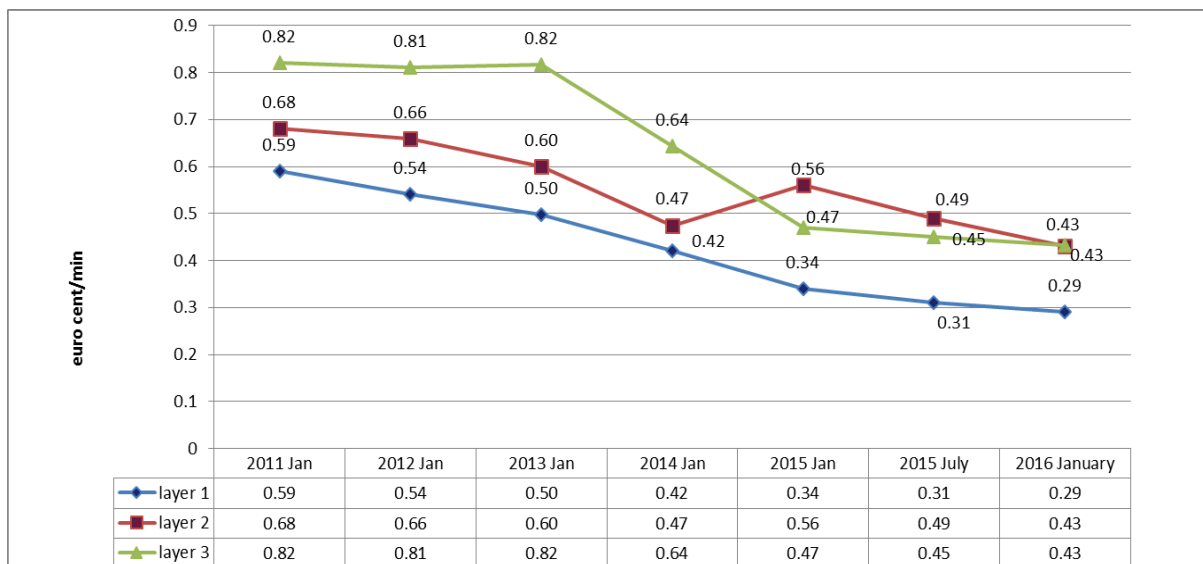
In Annex 1 the interconnection prices of operators listed by countries are presented. For each country, the NRA has provided information on the incumbent and some alternative or cable

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 January 2016)

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 January 2016 comprise information available in [Annex 1](#).

Figure 4 Simple averages^{2,3} of incumbents' fixed termination rates at the European level per layer

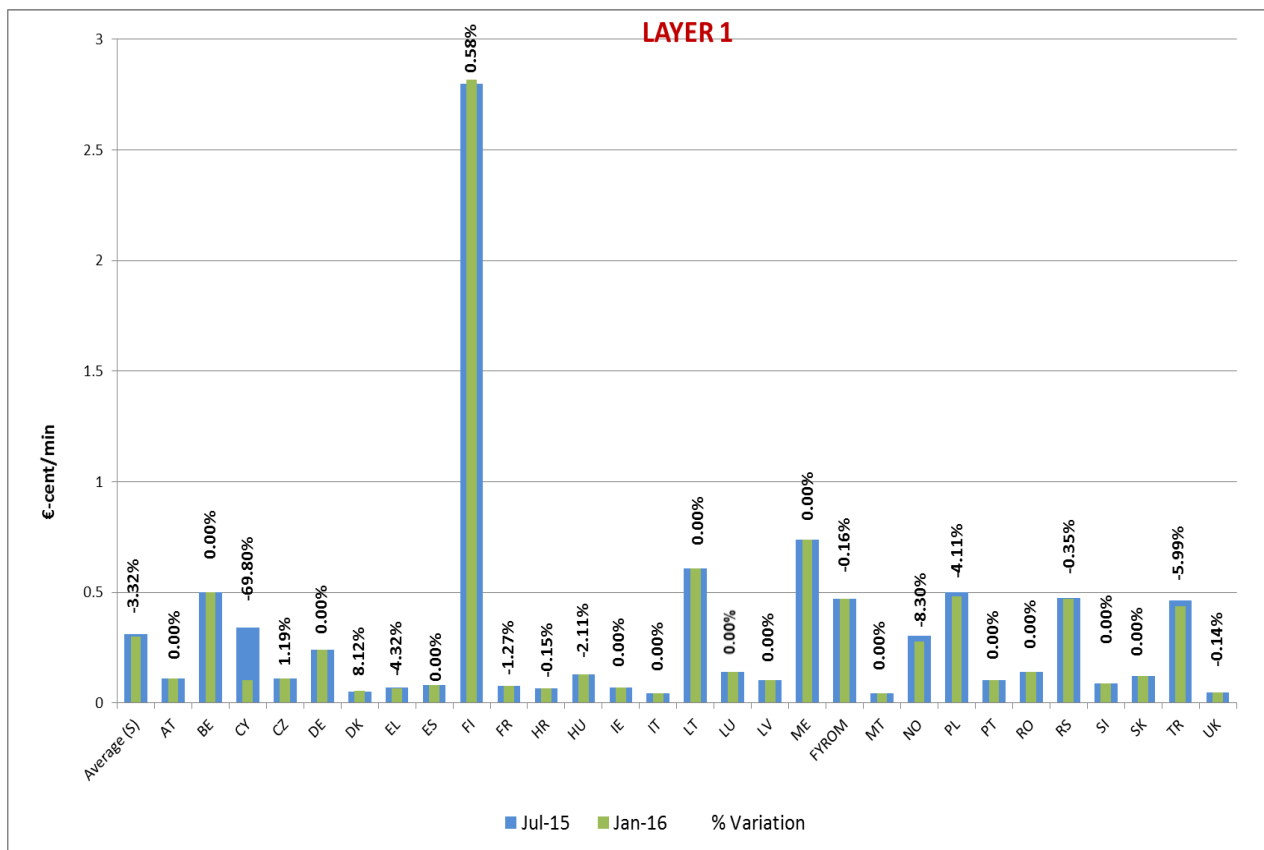


² The average of Layer 2 is slightly higher in January 2015 compared to January 2014, due to the inclusion of additional countries that did not provide information for January 2014.

³ 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 July 2015 to January 2016 in Euro cent)

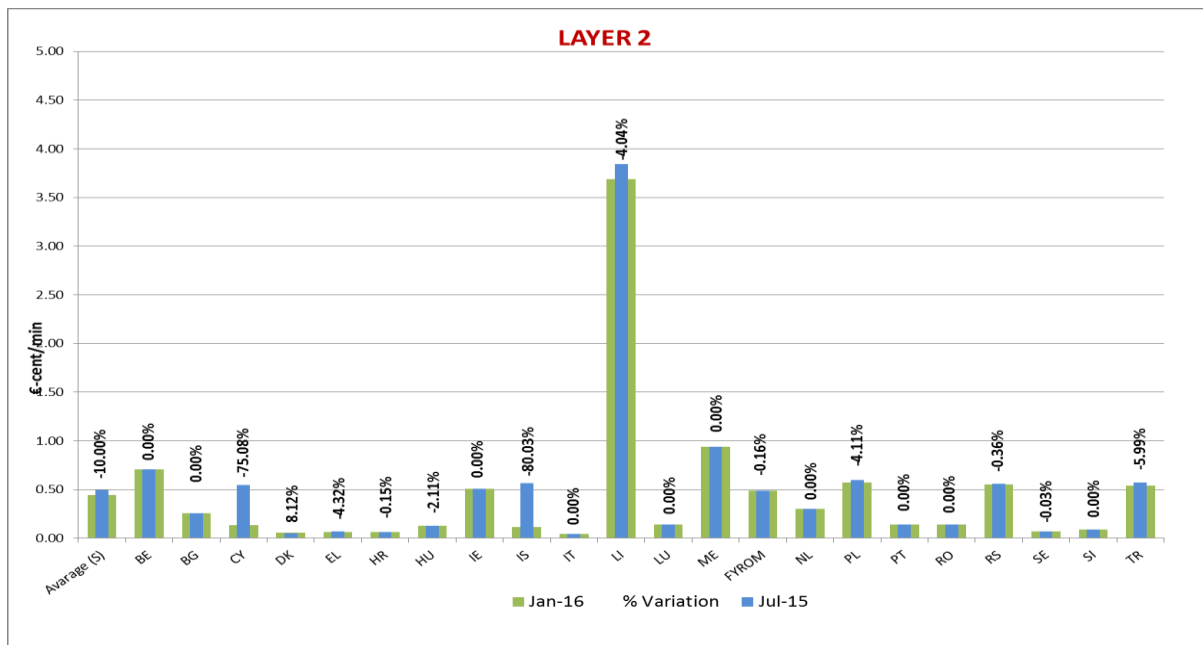
Figure 5 Layer 1 short term evolution^{4,5}



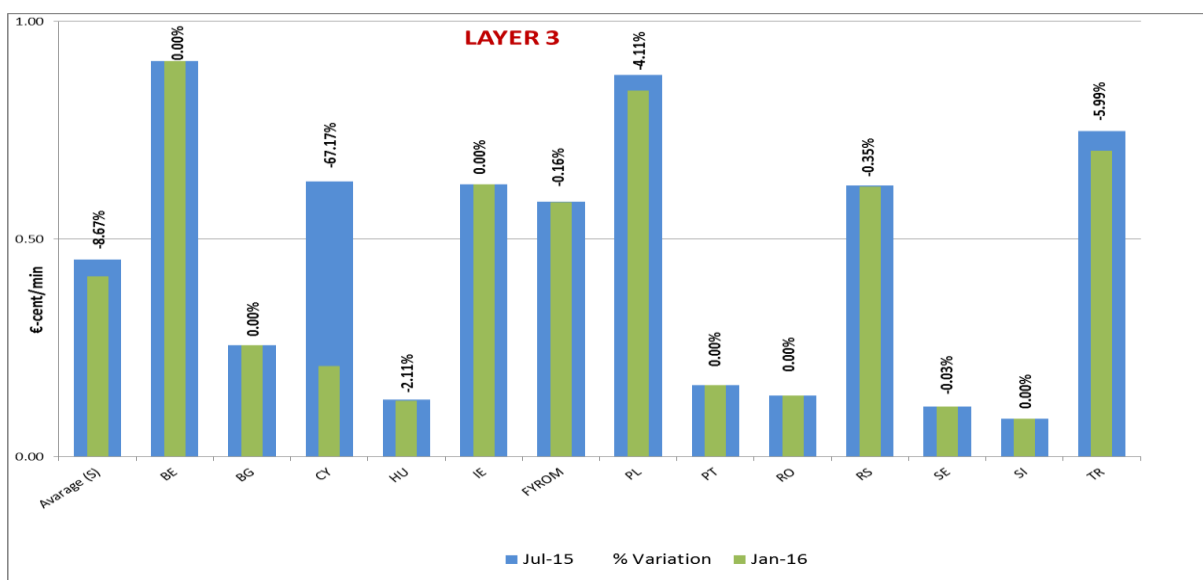
The percentage variation of FTRs in non-Euro zone countries shows change in case of Croatia, where the price in national currency increased by 0.50% and in Denmark by 6.15% .

⁴ The rates and variation for Finland reflect the average across all operators.

⁵ For more information regarding decrease of rates in Cyprus, please consult notes of Table 4 in Annex 2.

Figure 6 Layer 2 short term evolution⁶

The percentage variation of FTRs in non-Euro zone national currency shows a decreasing trend in the case of Iceland by 80.88%. The prices in national currency increased in Denmark by 6.15% and Croatia by 0.50%.

Figure 7 Layer 3 short term evolution⁷

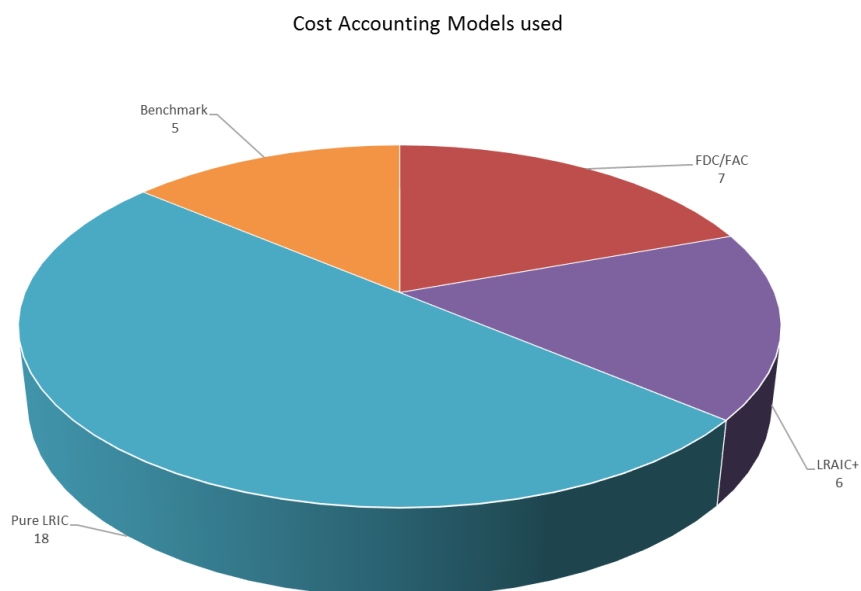
⁶ For more information regarding decrease of rates in Cyprus, please consult notes of Table 4 in Annex 2.

⁷ For more information regarding decrease of rates in Cyprus, please consult notes of Table 4 in Annex 2.

2.4. 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 seven NRAs. Six NRAs reported using LRAIC+etc. models and five NRAs use Benchmarking approaches.

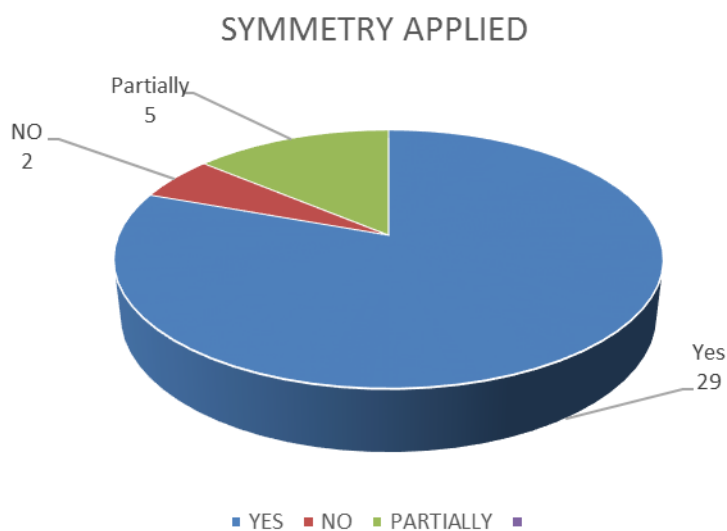
Figure 8 Cost accounting models used by NRAs



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

In most of the respondent countries FTRs are symmetric across all operators. Five of the NRAs reported partial symmetry while prices are not symmetric only in 2 of the reporting countries.

Figure 9 FTRs Symmetry



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

2.6. Number of lines and market shares

In [Annex 4](#) 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 January 2016 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 future evolution of MTRs.

The present overview of MTRs is based upon the results of a request for information sent to all NRAs in January 2016. 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 comparable⁸:

- 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).

⁸ Generally speaking, these assumptions may create margins of error in the present comparison, making it difficult to draw valid conclusions for policy purposes.

- VAT is not included in the revenues.
- For non-Euro countries, the average exchange rate for the fourth quarter of the year (Q4 2015) was used to convert the currencies. The exchange rates used are reported in Annex 10.

Regarding the short-term MTR evolution (from July 2015 to January 2016), 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 countries⁹;
- 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 January 2016)

Table 1 - Average MTR per country

Country	Average MTR per country (€cent)
AT	0.8049
BE	1.1800
BG	0.9715
CH	5.9897
CY	1.0089
CZ	0.9979
DE	1.6600
DK	0.7252
EE	1.0000
EL	1.0810
ES	1.0900
FI	1.2500
FR	0.7600
HR	0.8265
HU	0.5469

⁹ 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.

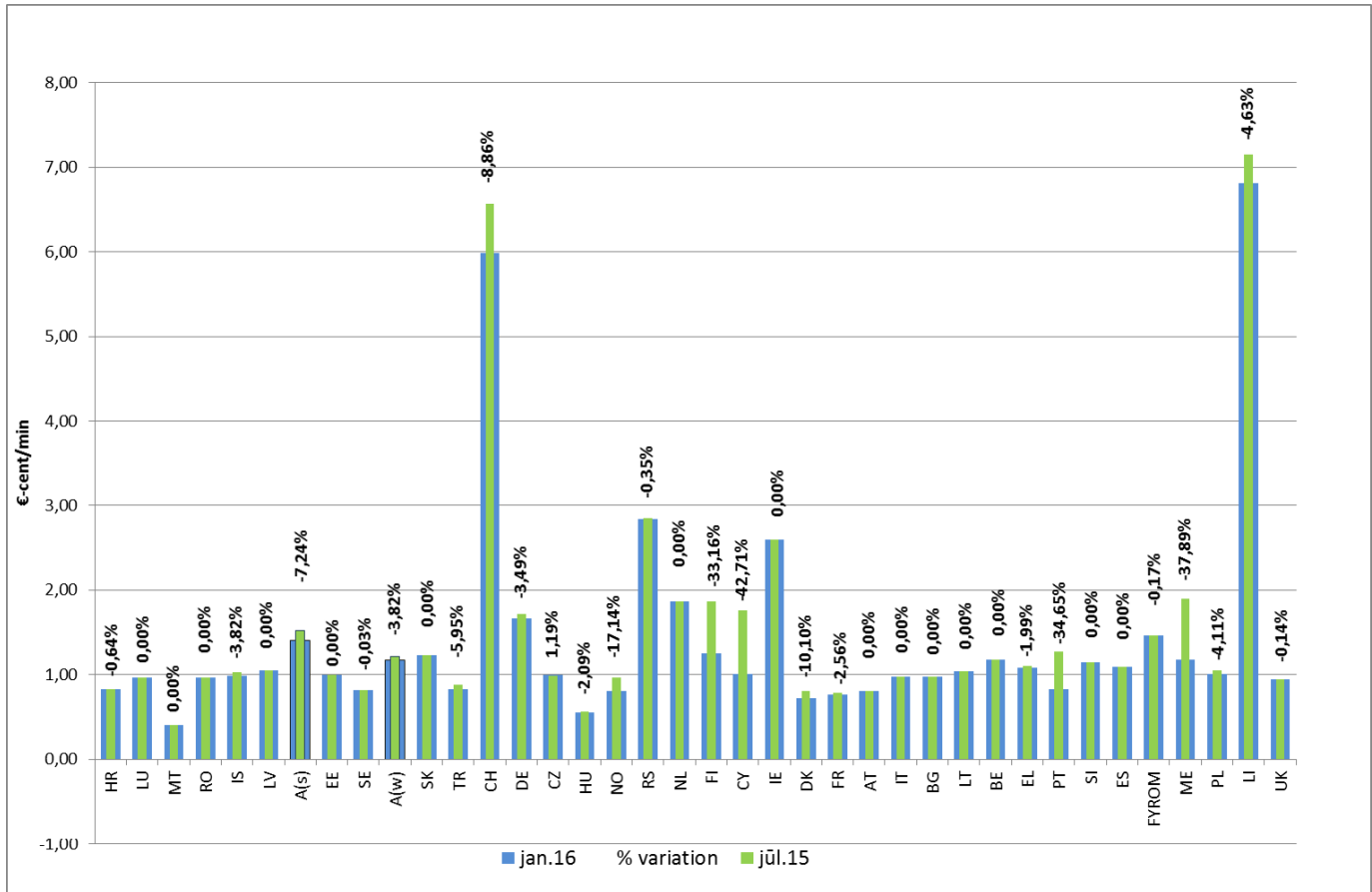
IE	2.6000 ¹⁰
IS	0.9904
IT	0.9800
LI	6.8174
LT	1.0400
LU	0.9700
LV	1.0500
ME	1.1800
FYROM	1.4612
MT	0.4045
NL	1.8610
NO	0.8032
PL	1.0062
PT	0.8300
RO	0.9600
RS	2.8382
SE	0.8138
SI	1.1400
SK	1.2260
TR	0.8257
UK	0.9418
Average(S)	1.4064
Average (W)	1.1712
Average EU 28 (S)	1.0616
Average EU 28 (W)	1.1076

Figures 10 and 11 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.

¹⁰ For information purposes, following publication of ComReg decision D02/16, from 1 September 2016 until 31 December 2018 the maximum MTRs will be determined in accordance with the BU Pure LRIC Model (as per that decision). The MTR from 1 September 2016 to 31 December 2016 is 0.84 euro cent per minute.

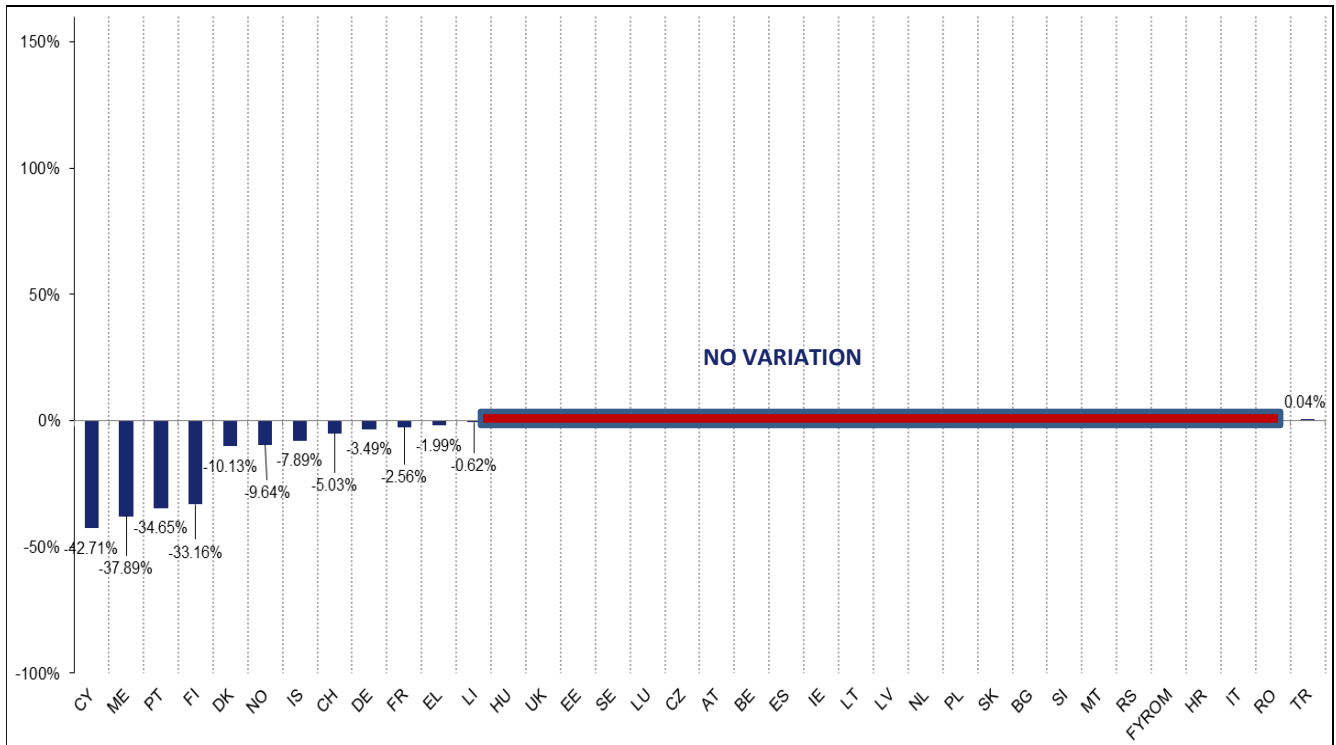
Percentage variation of average MTRs in Euro cent per country (from July 2015 to January 2016,)

Figure 10 variation in Euros



Percentage variation of average MTRs in national currency per country (from July 2015 to January 2016)

Figure 11 variation in national currency



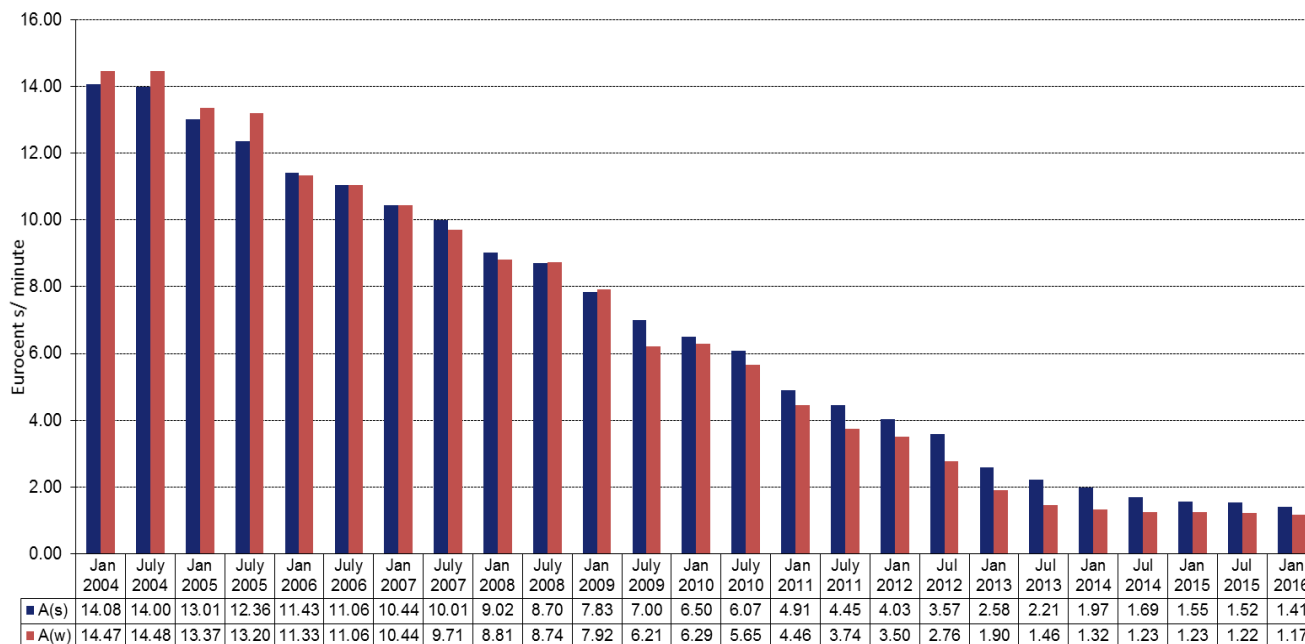
3.3. Average MTR per operator

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 5](#) .

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

Figure 12 Evolution of simple A(s) and weighted A(w) averages



Note to figure 12: 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.

Figures 13 and 14 show the cumulative declines of the simple and the weighted average of European MTRs since 2004.

Figure 13 European MTRs simple average cumulative decline

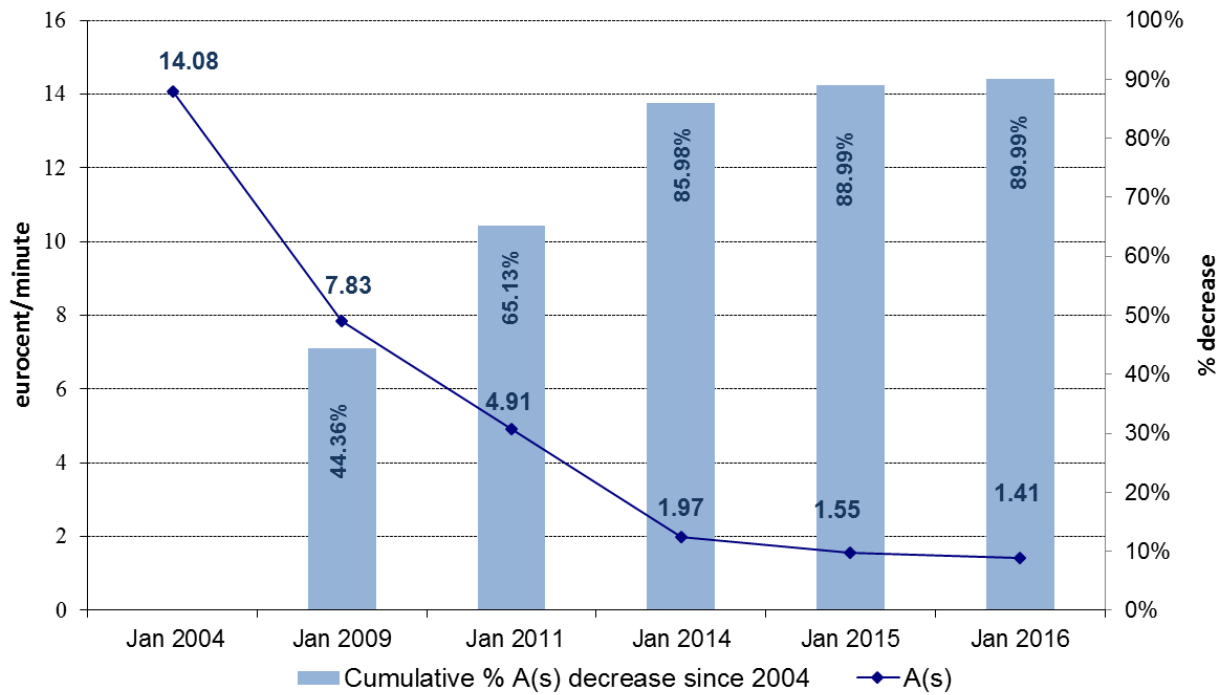
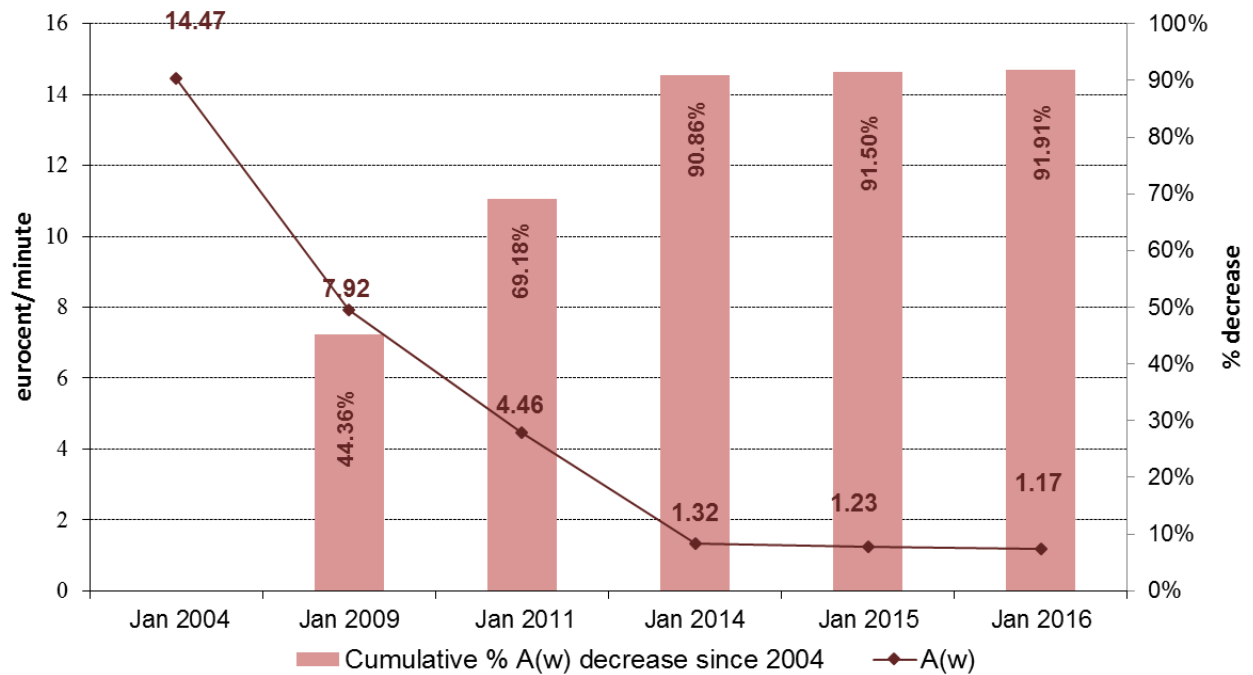


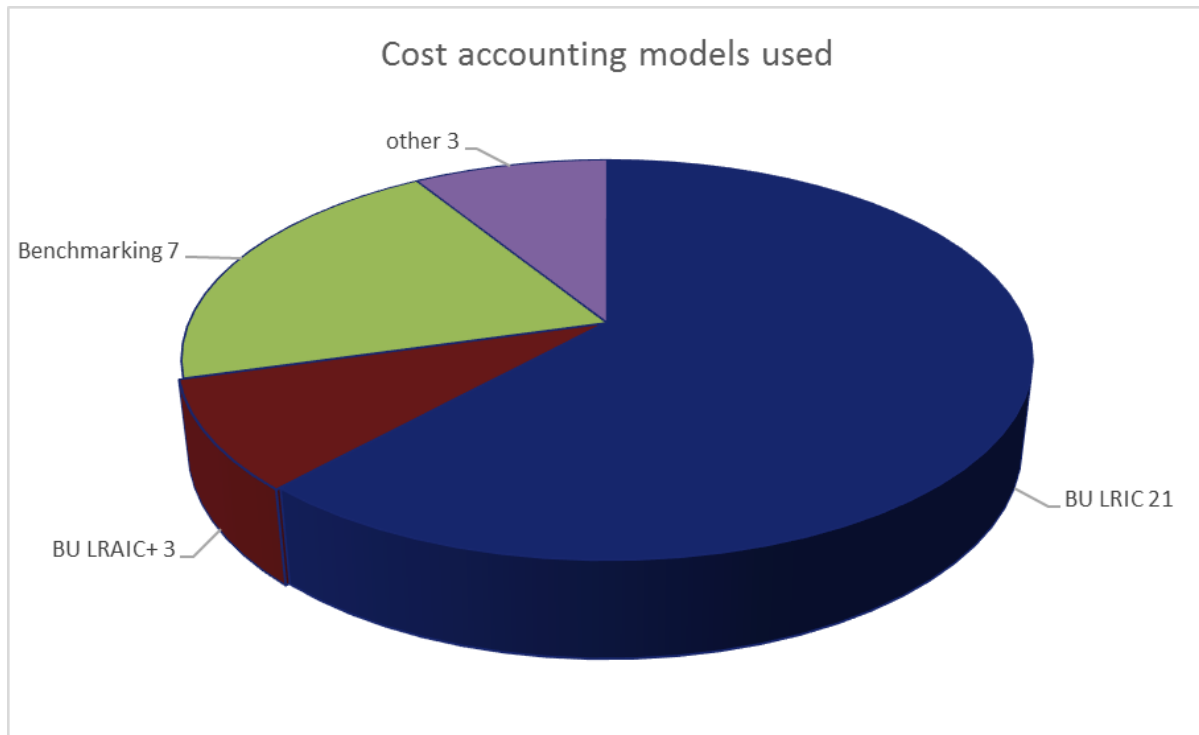
Figure 14 European MTRs weighted average cumulative decline



3.5. Regulatory model implemented and glide paths for MTRs

In the majority of countries 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 or benchmarking. Two NRAs did not indicate the model used.

Figure 15 Cost accounting models used by NRAs



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

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 data provided by NRAs as of January 2016. 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 considered¹¹).

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 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. Slovenia is 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.

¹¹ 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.

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. 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 8](#) are used.

For more information consult [Annex 7](#): SMS TR per operator.

4.2. Average SMS TR per country and per message (as of January 2016)

Table 2 - Average SMS TR per country

Country	Average SMS TR per country (€cent)
AT	3.12
BE	4.96
BG	confidential
CH	4.67
CY	0.60
CZ	confidential
DE	n.a.
DK	0.15
EE	2.30
EL	3.00
ES	2.63

FI	confidential
FR	1.00
HR	n.a.
HU	4.48
IE	3.17
IS	2.72
IT	3.31
LI	5.79
LT	0.91
LU	n/a
LV	2.13
ME	2.20
FYROM	0.81
MT	1.53
NL	5.60
NO	3.75
PL	1.17
PT	1.27
RO	2.30
RS	1.65
SE	3.23
SI	Bill & keep
SK	2.50
TR	0.14
UK	2.27
Average(S)	2.57
Average(W)	2.25

Annex

Annex 1 Fixed termination rates as of 1 January 2016

Table 3

Country	Operator	Layer	Average effective price per operator €cents		
			peak	Off-peak	WA
AT	Telekom Austria	Layer 1	0.1370	0.0850	0.1110
	Other operators	Layer 1	0.1370	0.0850	0.1110
BE	Proximus	Layer 1	0.6187	0.3247	0.5020
		Layer 2	0.8747	0.4583	0.7090
		Layer 3	1.1213	0.5883	0.9090
	Other operators	Layer 1	0.8747	0.4583	0.7090
		Layer 2	1.1213	0.5883	0.9090
BG	Bulgarian Telecommunication Company	Layer 2	0.2556	0.2556	0.2556
		Layer 3	0.2556	0.2556	0.2556
	Telenor Bulgaria	Layer 3	0.2556	0.2556	0.2556
	Mobiltel	Layer 3	0.2556	0.2556	0.2556
	Blizoo Media and Broadband	Layer 3	0.2556	0.2556	0.2556
CH	Swisscom	Layer 2	0.7436	0.3718	0.5540
		Layer 3	0.8972	0.4486	0.6684
CY	CYTA	Layer 1	N/A	N/A	0.1033
		Layer 2	N/A	N/A	0.1363
		Layer 3	N/A	N/A	0.2075
	PRIMETEL	Layer 2	N/A	N/A	0.1363
		Layer 3	N/A	N/A	0.2075
	CABLENET	Layer 2	N/A	N/A	0.1363
		Layer 3	N/A	N/A	0.2075
	MTN FIXED	Layer 2	N/A	N/A	0.1363
Layer 3		N/A	N/A	0.2075	
CZ	O2 Czech Republic a.s.	Layer 1	N/A	N/A	0.1109
	UPC Česká republika, s.r.o.	Layer 2	N/A	N/A	0.1109
	T-Mobile Czech Republic a.s.	Layer 2	N/A	N/A	0.1109
	Vodafone Czech Republic a.s.	Layer 2	N/A	N/A	0.1109
	České Radiokomunikace a.s.	Layer 2	N/A	N/A	0.1109
	IPEX a.s.	Layer 2	N/A	N/A	0.1109
DE	Telekom Deutschland GmbH	Layer 1	0.2400	0.2400	0.2400
DK	TDC	Layer 1	0.0590	0.0322	0.0555
		Layer 2	0.0590	0.0322	0.0555
EE	Telia Eesti	Layer 1	0.0970	0.0970	0.0970

		Layer 2	0.0970	0.0970	0.0970
	Starman	Layer 1	0.0970	0.0970	0.0970
	Elisa	Layer 1	0.0970	0.0970	0.0970
	STV	Layer 1	0.0970	0.0970	0.0970
EL	OTE	Layer 1	N/A	N/A	0.0665
		Layer 2	N/A	N/A	0.0665
	Forthnet	Layer 1	N/A	N/A	0.0665
		Layer 2	N/A	N/A	0.0665
	HOL	Layer 1	N/A	N/A	0.0665
		Layer 2	N/A	N/A	0.0665
	WIND	Layer 1	N/A	N/A	0.0665
		Layer 2	N/A	N/A	0.0665
	Other operators	Layer 1	N/A	N/A	0.0665
		Layer 2	N/A	N/A	0.0665
ES	Telefónica de España	Layer 1	0.0817	0.0817	0.0817
	Orange	Layer 1	0.0817	0.0817	0.0817
	Vodafone	Layer 1	0.0817	0.0817	0.0817
	Vodafone - Ono	Layer 1	0.0817	0.0817	0.0817
	Jazztel	Layer 1	0.0817	0.0817	0.0817
	Other operators	Layer 1	0.0817	0.0817	0.0817
FI	DNA Oyj	N/A	N/A	N/A	2.800
	Elisa Oyj	N/A	N/A	N/A	2.800
	TeliaSonera Finland Oyj	N/A	N/A	N/A	2.800
	Other operators (weighted average)	N/A	N/A	N/A	2.8161
FR	Orange	Layer 1	N/A	N/A	0.0780
	Other operators	Layer 1	N/A	N/A	0.0780
HR	HT	Layer 1	0.0787	0.0394	0.0651
		Layer 2	0.0787	0.0394	0.0651
	Optima Telekom	Layer 2	0.0787	0.0394	0.0122
	VIPnet	Layer 2	0.0787	0.0394	0.0666
	H1 Telekom	Layer 1	0.0787	0.0394	0.0719
Layer 2		0.0787	0.0394	0.0719	
HU	Magyar Telekom	Layer 1	0.1279	0.1279	0.1279
		Layer 2	0.1279	0.1279	0.1279
		Layer 3	0.1279	0.1279	0.1279
	Invitel	Layer 1	0.1279	0.1279	0.1279
		Layer 2	0.1279	0.1279	0.1279
		Layer 3	0.1279	0.1279	0.1279
UPC	Layer 1	0.1279	0.1279	0.1279	
Other operators		0.1279	0.1279	0.1279	
IE	Eircom	Layer 1	0.0690	0.0690	0.0716
		Layer 2	0.6057	0.3348	0.5098
		Layer 3	0.7496	0.4147	0.6264
IS	Siminn	Layer 2	0.1132	0.1132	0.1132
	Vodafone	Layer 2	0.1132	0.1132	0.1132
IT	Telecom Italia S.p.A.	Layer 1	0.0430	0.0430	0.0430
		Layer 2	0.0430	0.0430	0.0430
	Wind Telecomunicazioni S.p.A.	Layer 1	0.0430	0.0430	0.0430

	Fastweb S.p.A.	Layer 1	0.0430	0.0430	0.0430
	Vodafone Omnitel B.V	Layer 1	0.0430	0.0430	0.0430
LI	Telecom Liechtenstein AG	Layer 2	3.6873	3.6873	3.6873
LT	TEO LT AB	Layer 1	0.6100	0.6100	0.6100
	CSC Telecom	Layer 1	0.6100	0.6100	0.6100
	Lietuvos gelezinkeliai	Layer 1	0.6100	0.6100	0.6100
LU	EPT	Layer 1	0.1400	0.1400	0.1400
		Layer 2	0.1400	0.1400	0.1400
LV	Lattecom	Layer 1	0.1037	0.1037	0.1037
	Telefons	Layer 1	0.1037	0.1037	0.1037
	Megatel	Layer 1	0.1037	0.1037	0.1037
	Telekom Baltija	Layer 1	0.1037	0.1037	0.1037
	Other operators	Layer 1	0.1037	0.1037	0.1037
ME	Crnogorski Telekom	Layer 1	0.7400	0.7400	0.7400
		Layer 2	0.9400	0.9400	0.9400
	Mtel	Layer 1	0.9400	0.9400	0.9400
FYROM	Makedonski Telekom AD	Layer 1	0.4708	N/A	0.4708
		Layer 2	0.4871	N/A	0.4871
		Layer 3	0.5845	N/A	0.5845
	ONE Telecom services	Layer 3	0.5845	N/A	0.5845
	Robi	Layer 3	0.5845	N/A	0.5845
	Blizoo	Layer 3	0.5845	N/A	0.5845
	Other operators	Layer 3	0.5845	N/A	0.5845
MT	GO plc	Layer 1	N/A	N/A	0.0443
	Melita plc	Layer 1	N/A	N/A	0.0443
	Vodafone	Layer 1	N/A	N/A	0.0443
	Ozone	Layer 1	N/A	N/A	0.0443
	SIS	Layer 1	N/A	N/A	0.0443
	Vanilla	Layer 1	N/A	N/A	0.0443
NL	KPN	Layer 2	N/A	N/A	0.3020
	Ziggo	Layer 2	N/A	N/A	0.3020
	UPC	Layer 2	N/A	N/A	0.3020
	Tele2	Layer 2	N/A	N/A	0.3020
NO	Telenor	Layer 1	0.2784	0.2784	0.2784
	NextGen Tel	Layer 1	0.2784	0.2784	0.2784
	Get	Layer 1	0.2784	0.2784	0.2784
	TeliaSonera		0.2784	0.2784	0.2784
	Phonero	Layer 1	0.2784	0.2784	0.2784
PL	Orange Polska S.A.	Layer 1	0.6403	0.3213	0.4808
		Layer 2	0.7623	0.3800	0.5711
		Layer 3	1.1211	0.5606	0.8408
	Netia	Layer 1	0.6403	0.6403	0.6403
	Multimedia Polska S.A. Multimedia Polska Poludnie S.A.	Layer 1	0.6403	0.6403	0.6403
PT	MEO	Layer 1	0.1026	0.1026	0.1026
		Layer 2	0.1411	0.1411	0.1411

		Layer 3	0.1642	0.1642	0.1642
	NOS Group	Layer 1	0.1114	0.1114	0.1114
	Vodafone	Layer 1	0.1114	0.1114	0.1114
	ONI/Cabovisão	Layer 1	0.1114	0.1114	0.1114
RO	Telekom RC S.A. (former Romtelecom)	Layer 1	N/A	N/A	0.1400
		Layer 2	N/A	N/A	0.1400
		Layer 3	N/A	N/A	0.1400
	Other operators	Layer 1	N/A	N/A	0.1400
RS	Telekom Srbija	Layer 1	0.4717	0.4717	0.4717
		Layer 2	0.5544	0.5544	0.5544
		Layer 3	0.6206	0.6206	0.6206
	Orion telekom	Layer 1	0.5130	0.5130	0.5130
	Telenor	Layer 1	0.5130	0.5130	0.5130
SBB	Layer 1	0.5130	0.5130	0.5130	
SE	TeliaSonera	Layer 2	N/A	N/A	0.0710
		Layer 3	N/A	N/A	0.1150
SI	Telekom Slovenije	Layer 1	0.0876	N/A	0.0876
		Layer 2	0.0876	N/A	0.0876
		Layer 3	0.0876	N/A	0.0876
	Telemach	Layer 1	0.0876	N/A	0.0876
	T-2	Layer 1	0.0876	N/A	0.0876
Amis	Layer 1	0.0876	N/A	0.0876	
SK	Slovak Telekom	Layer 1	0.1234	0.1234	0.1234
	Orange Slovensko	Layer 1	0.1234	0.1234	0.1234
	UPC	Layer 1	0.1234	0.1234	0.1234
	Swan	Layer 1	0.1234	0.1234	0.1234
TR	Türk Telekom	Layer 1	N/A	N/A	0.4363
		Layer 2	N/A	N/A	0.5367
		Layer 3	N/A	N/A	0.7031
	Other operators	Layer 3	N/A	N/A	1.0043
UK	BT	Layer 1	0.0623	0.0277	0.0485
	TalkTalk	Layer 1	0.0623	0.0277	0.0485
	Sky	Layer 1	0.0623	0.0277	0.0485
	Virgin Media	Layer 1	0.0623	0.0277	0.0485
	Vodafone	Layer 1	0.0623	0.0277	0.0485
	Other operators	Layer 1	0.0623	0.0277	0.0485

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 of a 3.2 minute call).

BG: The incumbent' core network is conditionally divided into two logical hierarchy levels: Layer 2 and Layer 3, referring to regional and national coverage. Layer 1 (local) termination is no longer applied in Bulgaria. The segmentation of the network 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. At the moment CRC is in process of updating the Bu-LRIC model.

CH: The prices indicated are taken from the Swisscom price manual for TDM-Interconnection. For IP-Interconnection the same prices as the ones for regional TDM-interconnection (layer 2) apply. Furthermore, there exists a "clause of reciprocity", meaning that the tariffs of other operators have to be same as the ones of Swisscom.

CY: Only one rate applies. There is no separation of rates to peak and off-peak. CYTA uses layer 1 interconnection for local and regional coverage and layer 2 for national coverage. Alternative operators use layer 2 and layer 3 interconnection.

CZ: In the Czech Republic hypothetical 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).

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 FTR average for the Other operators (combined market share 23 %) is a weighted average as of 1.1.2016.

FR: The 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 3.3 million minutes per E1 per year.

IS: The country is a single interconnection area with one pricing structure and SINGLE TRANSIT.

LI: Telecom Liechtenstein AG does not use differentiated Peak/Off-peak FTRs.

LT: Data as of Q3 2015.

LU: Data are valid as of 1 July 2015.

MT: Data reflect the position as at Q3 2015.

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.

SK: Operators do not differentiate between peak and off-peak traffic.

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. All other CPs must set rates that are fair and reasonable rates, which are presumed to be symmetric to BT.

Annex 2 FTR regulatory model implemented

Table 4

Country	COST ACCOUNTING MODEL
AT	Pure BU LRIC
BE	TD
BG	Pure BU LRIC
CH	BU LRAIC+
CY	Benchmark
CZ	Pure BU LRIC
DE	BU LRAIC+
DK	Pure BU LRIC
EE	Benchmark
EL	Pure BU LRIC
ES	Pure BU LRIC
FI	FDC
FR	Pure BU LRIC
HR	Pure BU LRIC
HU	Pure BU LRIC
IE	Pure BU LRIC
IS	Benchmark
IT	Pure BU LRIC
LI	TD
LT	BU LRAIC+
LU	Pure BU LRIC
LV	Benchmark
FYROM	TD LRIC
ME	TD
MT	Pure BU LRIC
NL	BU LRAIC+
NO	BU 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 Table 4

BE: The principle of setting Pure BULRIC FTRs dates back from our previous FTR market analysis (March, 2nd, 2012), however the cost model was not readily available so BIPT engaged to set Pure BULRIC FTRs in a separate decision. The draft decision on tariffs has been consulted for national

consultation in 2015, work is still in progress to adapt the cost model and the draft decision before the final decision is taken. Final decision is expected in the course of H1 2016.

BG: With Decision 134 from 14 February 2013 CRC approved cost-oriented fixed terminating rates based on Pure Bu-LRIC model as follows:

from 01.07.2013 - 0,005 BGN/minute

from 01.01.2014 - 0,005 BGN/minute

from 01.01.2015 - 0,005 BGN/minute.

CH: Source of the Swisscom-Tariffs: https://www.swisscom.ch/dam/swisscom/de/ws/documents/D_IC-Dokumente/Handbuch%20Preise_IC_V1-15.pdf, p.11 and

https://www.swisscom.ch/dam/swisscom/de/ws/documents/D_IC-Dokumente/voip-ic/DE_Handbuch%20Preise_VoIP-IC_V1-1.pdf, p. 5.

CY: Until 31/12/2015 termination rates were 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). This year OCECPRare in the process to develop a BULRIC model. With the last market analysis which was concluded in July 2015 benchmarking has been set for the calculation of the new termination rates starting 1/1/2016.

CZ: Calculation of FTR is based on pure BU-LRIC model. For purposes of FTR regulation CTU has determined one level of FTR without differentiation between peak and off-peak time or POI.

DE: No glide path regulation. FTR are valid from 01.12.2014 until 31.12.2016. The decision is preliminary and still subject to Phase II investigation.

DK: All prices are of 1st January 2016.

Number of lines as of medio 2015. Data for subscribers for ultimo 2015, will be released ultimo April 2016.

EL: A Pure BU LRIC model applies since 28/5/2014 as a result of EETT's decision 714/09/10-4-2014 (Official Gazette 1049/28-04-2014).

ES: From November 1st 2015 onwards, new regulation for FTR is applied. There is no differentiation between peak/off-peak, there is symmetry in tariffs and only local level is regulated.

FI: FTR average for the rest of operators (combined market share 23 %) is a weighted average as of 1.1.2016.

IE: In relation to fixed termination for layer 1 (ie 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. Cost model is Benchmark - Target rate in glide path based on historical cost reached 4.dec 2012.

IT: The numbers of subscribers are estimates. AGCOM does not distinguish between national and local FTR, since had imposed one rate irrespective of the level of termination.

LI: FTR regulation is not finalized.

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: Prices of termination on alternative fixed networks should not be higher than prices applied by TEO LT, AB at particular network level.

RRT finalised market research and FTR based on pure BULRIC will be set from 01/01/2016.

No differentiation Peak/Off-peak FTR.

LU: 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).

LV: Latvian operators don't differentiated peak/off peak traffic.

ME: Current prices are regulated according to the CCA LRIC top down costing methodology.

FYROM: The current prices are calculated according to Top Down LRIC from the Incumbent and approved by the Agency. The prices are in national currency (denars), termination rates are 0,29 denars

or 0,0047 euro (no euro cents) local. 0,30 denars or 0,0048euro (no euro cents) regional.0,36 denars or 0,0058euro (no euro cents) national.

NO: Numbers of subscribers are provided as 30.06.2015. The total number of subscribers according to 1st of January 2016 will not be able before Q2 2016.

PT: ANACOM has set the fixed termination rates by benchmarking against the BU pure LRIC prices in countries that had already applied those prices. The benchmark has therefore taken into account the prices established by the following countries: Denmark; France; Ireland; Malta; Bulgaria; Austria and Slovakia.

These prices are in place as 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 EUR 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 eurocents.

RO: For Telekom RC S.A. (former Romtelecom S.A.) the 0.14eurocents/min FTR apply irrespective of the interconnection level.

RS: Termination rates are as of 01/01/2016. Other data provided are for 2014. Data for 2015 will be available by April 2016.

SK: RU has not used any glide path.

TR: ICTA does not regulate FTRs via glide path, and the approvals don't occur periodically.

Annex 3 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 5

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	Until 31/12/2015 the alternative operators' termination rate was set at the incumbent's (CYTA) national rate (0,632 euro cents). From 1/1/2016 the same regulated terminations rates apply for all providers.
CZ	YES	There is only one FTR valid irrespective of time and place of interconnection.
DK	YES	
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	
EL	YES	Symmetry applies since 28 May 2014.
ES	YES	The FTR is symmetrical for all the operators and established in market analysis. As the FTR is based on an efficient NGN-based operator, there is no longer the concept of level of interconnection, as there was in the past, because the architecture of NGN operators is not hierarchical. However, it was decided in the market analysis that, just for the case of termination in the incumbent network, the interconnected operator should be connected at 21 Points of Interconnection, if TDM based interconnection is used. If the operator connects to less than these 21 Pol, then a transit for terminating at the other Pols should be paid. For IP interconnection the number of Pols for termination in incumbent operator is still pending of decision. For the termination in alternative operators, there is no remedy concerning the minimum number of Pols for FTR. It is subject to commercial negotiation, as it was in the past.
FI	PARTIALLY	In Finland there are no price caps on FTRs. FTRs are symmetrical among most fixed operators.

FR	PARTIALLY	Operators with significant market influence as specified in the Annex A of the 2014-1485 decision.
HR	YES	Symmetry in fixed network is prescribed for all operators as of the 1 January 2013.
HU	YES	
IE	PARTIALLY	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
IS	YES	
IT	YES	
LI	NO	There is only one fixed network operator in Liechtenstein: Telecom Liechtenstein AG. National interconnecting partners are MNOs. Fixed net interconnection partners of Telecom Liechtenstein are regulated by other NRAs and are not obliged to apply Liechtenstein's FTR regulation.
LT	YES	FTRs of all fixed operators having SMP are symmetric, i.e. the FTRs are the same, irrespective of the number of customers, the difference in network topologies, level of interconnection and so on.
LU	PARTIALLY	A maximum price cap is defined by the regulation, but operators may implement the solution in their own way.
LV	YES	
ME	YES	
FYROM	YES	
MT	YES	
NL	YES	
NO	YES	
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.

		<p>With regard to MEO: Local, single and double transit prices were set at a level that, weighted with the traffic, the average price is 0,1114 eurocents.</p> <p>For the other SMP operators: Whenever the operator decides to offer 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. Whenever the operator decides to offer a simplified pricing structure with only one level of prices, the termination price may not exceed 0.1114 EUR cents per minute.</p> <p>All SMP operators shall apply a per second billing system that does not include any set-up fee.</p>
RO	YES	
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 FTRs, which is calculated as a weighted average price based on the 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 (symmetry) with the cost oriented price of the incumbent.
SI	YES	
SK	YES	The operators offer non-discriminatory FTRs to all their interconnect partners without any exception.
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 4 Market shares

Table 6

	Operator	Number of lines	Total number of lines	Market shares
AT	A1 Telekom Austria	2,228,803	3,417,117	65.2%
	Operator 2	490,598		14.4%
	Operator 3	211,409		6.2%
	Operator 4	184,409		5.4%
	Operator 5	80,332		2.4%
	Operator 6	51,069		1.5%
	Other operators	170,497		5.0%
BE	Proximus	2.591.961	4.488.711	57,5%
	Other operators	1.896.750		42,5%
BG	Bulgarian Telecommunication Company	Confidential	Confidential	63.7%
	Telenor Bulgaria	Confidential		14.4%
	Mobiltel	Confidential		12.1%
	Blizoo Media and Broadband	Confidential		8.5%
	Other operators	Confidential		1.3%
CH	Swisscom	N/A	N/A	N/A
	Other operators	N/A	N/A	N/A
CY	CYTA	246,532	315,338	78.2%
	PRIMETEL	34,530		11.0%
	CABLENET	26,267		8.3%
	MTN FIXED	8,009		2.5%
CZ	O2 Czech Republic a.s.	Confidential	Confidential	48.2%
	UPC Česká republika s.r.o.	Confidential		8.6%
	T-Mobile Czech Republic a.s.	Confidential		7.6%
	Vodafone Czech Republic a.s.	Confidential		6.5%
	České radiokomunikace a.s.	Confidential		3.8%
	IPEX a.s.	Confidential		3.0%
	Other operators	Confidential		22.3%
DE	Telekom Deutschland GmbH	20,660,000	36,890,000	56.0%
	Other operators	16,230,000		44.00%
DK	TDC	677,067	866,936	78.1%
	Telenor	49,760		5.7%
	Telia	56,740		6.5%

	DLG Tele	56,683		6.5%
	Other operators	26,686		3.1%
EE	Telia Eesti	321,532	381,919	84.2%
	Starman	32,584		8.5%
	Elisa Eesti	14,056		3.7%
	STV	13,747		3.6%
EL	OTE	2,718,175	4,755,811	57.2%
	FORTHNET	Confidential		Confidential
	HOL	Confidential		Confidential
	WIND	Confidential		Confidential
	Other operators	Confidential		Confidential
ES	Telefónica de España	10,060,200	19,157,622	52.5%
	Oragne	2,126,939		11.1%
	Vodafone	2,077,609		10.8%
	Vodafone - Ono	2,048,457		10.7%
	Jazztel	1,710,030		8.9%
	Other operators	1,134,387,618		5.9%
FI	DNA Oyj	N/A	N/A	15.0%
	Elisa Oyj			39.0%
	TeliaSonera Finland Oyj			23.0%
	Other operators			23.0%
FR	Orange	Confidential	36,674,098	Confidential
	Other operators			
HR	HT	886,730	1,291,196	68.7%
	OPTIMA	152,248		11.8%
	VIPnet	162,627		12.6%
	H1	89,591		6.9%
HU	Magyar Telekom	1,676,944	3,094,228	54.2%
	Invitel	388,257		12.5%
	UPC	513,876		16.6%
	Other operators	515,151		16.6%
IE	Eircom	884.916	NA	NA
IS	Siminn	89,014	126,745	70.20%
	Vodafone	37,731		29.80%

IT	Telecom Italia S.p.A.	11,906,651	20,275,568	58.7%
	Wind Telecomunicazioni S.p.A.	2,714,627		13.4%
	Fastweb S.p.A.	2,199,679		10.8%
	Vodafone Omnitel B.V. (including TeleTu S.p.A.)	2,114,530		10.4%
	Other operators	1,340,081		6.6%
LI	Telecom Liechtenstein AG	17,184	17,184	100.00%
LT	TEO LT AB	477,313	520,640	91.7%
	CSC Telecom	8,364		1.6%
	Lietuvos gelezinkeliai	5,442		1.0%
	Other operators	29,521		5.7%
LV	Lattelecom	270,894	353,691	76.6%
	Telefons	25,284		7.1%
	Megatel	23,994		6.8%
	Telekom Baltija	13,985		4.0%
	Other operators	19,534		5.5%
LU	EPT	205,000	273,400	75.0%
	Other operators	68,400		25.0%
ME	Crnogorski Telekom	162,471	168,360	96.5%
	Mtel	5,889		3.5%
FYROM	Makedonski Telekom AD	226,653	372,557	60.8%
	ONE Telecom services	55,723		15.0%
	Robi	25,308		6.8%
	Blizoo	44,944		12.1%
	Other operators	19,929		5.3%
MT	Go plc	150,214	229,880	65.3%
	Melita plc	78,101		34.0%
	Vodafone	531		0.2%
	Ozone	775		0.3%
	SIS	207		0.1%
	Vanilla	52		0.0%
NL	KPN	N/A	N/A	N/A
	Ziggo			
	UPC			
	Tele2			
NO	Telenor	625,726	1,029,545	60.8%
	NextGen Tel	86,598		8.4%
	Get	58,448		5.7%
	TeliaSonera	45,950		4.5%
	Phonero	36,753		3.6%

	Other operators	176,070		17.1%
PL	Orange Polska S.A.	Confidential	4,728,022	Confidential
	Netia	Confidential		Confidential
	Multimedia Polska S.A.	Confidential		Confidential
	Multimedia Polska Poludnie S.A.	Confidential		Confidential
PT	MEO	Confidential	4,682,997	50.1%
	NOS Group	Confidential		32.8%
	Vodafone	Confidential		12.4%
	ONI/Cabovisão	Confidential		4.3%
	Other operators	Confidential		0.3%
RO	Telekom RC S.A.	Confidential	4,300,000	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	Confidential	2,770,462	92.8%
	SBB	Confidential		5.5%
	Telenor	Confidential		0.7%
	Orion telekom	Confidential		0.3%
	Other operators	Confidential		0.7%
SE	TeliaSonera	2,708,600	3,779,000	71.7%
	Comhem	337,100		8.9%
	Telenor	250,100		6.6%
	Alltele	58,400		1.5%
	TelaVox	82,900		2.2%
	Other operators	341,900		9.0%
SI	Telekom Slovenije	Confidential	Confidential	56.3%
	Telemach	Confidential		20.3%
	T-2	Confidential		11.6%
	Amis	Confidential		6.0%
	Other operators	Confidential		5.9%
SK	Slovak Telekom	Confidential	1,233,626	Confidential
	Orange Slovensko	Confidential		Confidential
	UPC	Confidential		Confidential
	Swan	Confidential		Confidential
	Other operators	Confidential		Confidential
TR	Türk Telekom	N/A	N/A	N/A
	Other Operators	N/A		N/A
UK	BT	Confidential		Confidential

	TalkTalk	Confidential	33,601,843	Confidential
	Sky	Confidential		Confidential
	Virgin Media	Confidential		Confidential
	Vodafone	Confidential		Confidential
	Other operators	Confidential		Confidential

Notes to Table 6

BG: Number of fixed telephone lines as of 31.12.2015.

CY: Number of lines as at 30/9/2015.

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 30 June 2015 – data for the whole year 2015 are not yet available.

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

EL: Figures refer to active telephone access lines as at 30/6/2015. The wholesale line rental lines are included in the incumbent's (OTE) lines.

FR: Total number of lines by the end of 2015.

HR: Data from Q3 2015.

LT: Data as of Q3 2015.

LU: Data as of 01/07/2015.

MT: Data reflects position as at Q3 2015.

SK: The number of lines of Slovak Telekom includes the all type of accesses in fixed network with a geographic number.

Annex 5 Average MTR per operator as of 1 January 2016

Table 7

Country	Operator	Average effective prices (€cent)	Subscribers	Country total subscribers	Market Share %
AT	A1Telekom Austria	0.8049	5,300,000	13,113,000	40.42%
	T-Mobile Austria	0.8049	3,800,000		28.98%
	Hutchison Drei Austria	0.8049	3,700,000		28.22%
BE	Proximus	1.1800	<i>confidential</i>	14 404 825	<i>confidential</i>
	Mobistar	1.1800	<i>confidential</i>		<i>confidential</i>
	Base	1.1800	<i>confidential</i>		<i>confidential</i>
BG	Mobitel	0.9715	<i>confidential</i>	<i>confidential</i>	39.64%
	Telenor Bulgaria	0.9715	<i>confidential</i>		32.25%
	BTC	0.9715	<i>confidential</i>		27.93%
CH	Swisscom	5.4849	6,625,000	10,881,594	60.88%
	Sunrise	6.7754	2,414,000		22.18%
	Salt	6.7754	1,842,594		16.93%
CY	Cyta	0.9900	703,495	1,123,955	62.59%
	Primetel	1.3860	53,711		4.78%
	MTN	0.9900	359,499		31.99%
CZ	T-Mobile Czech Republic a.s.	0.9979	<i>confidential</i>	<i>confidential</i>	39.15%
	O2 Czech Republic a.s.	0.9979	<i>confidential</i>		31.41%
	Vodafone Czech Republic a.s.	0.9979	<i>confidential</i>		23.03%
DE	T-Mobile	1.6600	39,892,000	113,397,000	35.11%
	Vodafone	1.6600	30,216,000		26.97%
	Telefónica Germany GmbH & Co. OHG	1.6600	43,289,000		37.92%
DK	TDC	0.7252	3,092,444	8,411,183	36.77%
	Telia	0.7252	1,482,272		17.62%
	Telenor	0.7252	1,989,097		23.65%
	Hi3G	0.7252	1,114,919		13.26%
EE	Telia Eesti AS	1.0000	752,765	1,903,545	39.55%
	Elisa Eesti AS	1.0000	643,194		33.79%
	Tele2 Eesti AS	1.0000	507,586		26.67%
EL	Cosmote	1.0810	<i>confidential</i>	12,681,641	<i>confidential</i>
	Vodafone	1.0810	<i>confidential</i>		<i>confidential</i>
	Wind	1.0810	<i>confidential</i>		<i>confidential</i>
ES	TME	1.0900	15,734,734	50,673,326	31.05%
	Vodafone	1.0900	12,689,870		25.04%
	Orange	1.0900	11,545,070		22.78%
	Xfera	1.0900	3,383,961		6.68%
FI	DNA	1.2500	n.a.	9,420,000	25.0%
	Elisa	1.2500	n.a.		39.0%

	TeliaSonera	1.2500	n.a.		35.0%
FR	Orange	0.7600	<i>confidential</i>	69,456,503	<i>confidential</i>
	SFR	0.7600	<i>confidential</i>		<i>confidential</i>
	Bouygues Telecom	0.7600	<i>confidential</i>		<i>confidential</i>
	Free Mobile	0.7600	<i>confidential</i>		<i>confidential</i>
HR	HT	0.8265	2,162,892	4,629,517	46.72%
	VIPnet	0.8265	1,599,357		34.55%
	Tele2	0.8265	867,268		18.73%
HU	T-Mobile	0.5469	<i>confidential</i>	<i>confidential</i>	<i>confidential</i>
	Telenor	0.5469	<i>confidential</i>		<i>confidential</i>
	Vodafone	0.5469	<i>confidential</i>		<i>confidential</i>
IE	Vodafone Ireland Limited	2.6000	1,879,410	4,902,909	38.3%
	Three Ireland Hutchison Limited (formerly Hutchison 3G Ireland Limited)	2.6000	1,568,633		32.0%
	Three Ireland Services (Hutchison) Limited (formerly Telefonica Ireland Limited)	2.6000			
	Meteor Mobile Communications Limited	2.6000	1,006,565		20.5%
	Tesco Mobile Ireland Limited	2.6000	332,129		6.8%
	Lycamobile Ireland Limited	2.6000	Confidential		Confidential
IS	Siminn	0.9904	149,588	423,544	35.32%
	Vodafone	0.9904	113,587		26.82%
	Nova	0.9904	141,594		33.43%
	365/Tal	0.9904	15,496		3.66%
IT	Telecom Italia S.p.A.	0.9800	30,022,754	93,072,439	32.3%
	Vodafone Omnitel N.V.	0.9800	24,670,249		26.5%
	Wind Telecomunicazioni S.p.A.	0.9800	21,344,634		22.9%
	H3G S.p.A.	0.9800	10,210,167		11.0%
	Poste Mobile	0.9800	3,551,000		3.8%
LI	Salt (Liechtenstein) AG	6.8174	<i>confidential</i>	11,054	<i>confidential</i>
	Swisscom (Schweiz) AG		<i>confidential</i>		<i>confidential</i>
	Telecom Liechtenstein AG		<i>confidential</i>		<i>confidential</i>
LT	Tele2	1.0400	1,817,305	4,235,577	42.91%
	Omnitel	1.0400	1,301,541		30.73%
	Bite Lietuva	1.0400	1,036,590		24.47%
LU	Post Télécom	0.9700	455,500	873,700	52.13%
	Tango	0.9700	286,600		32.80%
	Orange	0.9700	131,600		15.06%
LV	Tele2	1.0500	924,721	2,579,184	35.85%

	Latvijas Mobilais Telefons	1.0500	916,467		35.53%
	Bite Latvija	1.0500	490,249		19.01%
	Zetcom	1.0500	177,442		6.88%
ME	Telenor	1.1800	390,573	1,007,890	38.75%
	Crnogorski Telekom	1.1800	329,844		32.73%
	Mtel	1.1800	287,473		28.52%
FYROM	T Mobile Macedonia	1.4612	1,006,470	2,209,280	46.86%
	ONE Telecommunication services	1.4612	536,533		26.03%
	VIP Macedonia	1.4612	588,024		27.11%
MT	Go plc	0.4045	215,376	567,607	37.94%
	Melita plc	0.4045	88,355		15.57%
	Vodafone	0.4045	253,942		44.74%
	Redtouch fone	0.4045	9,896		1.74%
NL	KPN	1.8610	6,694,000	20,784,000	31.72%
	Vodafone	1.8610	5,068,000		24.82%
	T-Mobile	1.8610	3,677,000		19.27%
NO	Telenor	0.8032	2,973,155	5,841,088	50.90%
	TeliaSonera	0.8032	2,219,021		37.99%
	Phonero	0.8032	195,210		3.34%
	Lyca	0.8032	168,519		2.89%
PL	Orange Polska S.A.	1.0062	<i>confidential</i>	56,905,306	<i>confidential</i>
	Polkomtel sp. z o.o.	1.0062	<i>confidential</i>		<i>confidential</i>
	P4 sp. z o.o.	1.0062	<i>confidential</i>		<i>confidential</i>
	T-Mobile Polska S.A.	1.0062	<i>confidential</i>		<i>confidential</i>
PT	MEO	0.8300	<i>confidential</i>	16,790,405	46.48%
	VODAFONE	0.8300	<i>confidential</i>		30.35%
	NOS	0.8300	<i>confidential</i>		21.65%
RO	Vodafone Romania S.A.	0.9600	<i>confidential</i>	23,100,000	<i>confidential</i>
	Orange Romania S.A.	0.9600	<i>confidential</i>		<i>confidential</i>
	TELEKOM RMC S.A.	0.9600	<i>confidential</i>		<i>confidential</i>
	RCS & RDS S.A.	0.9600	<i>confidential</i>		<i>confidential</i>
RS	MTS (Telekom Srbija)	2.8382	<i>confidential</i>	9,344,977	<i>confidential</i>
	Telenor	2.8382	<i>confidential</i>		<i>confidential</i>
	Vip mobile	2.8382	<i>confidential</i>		<i>confidential</i>
SE	TeliaSonera	0.8138	5,352,600	14,413,700	37.14%
	Tele2	0.8138	3,960,100		27.47%
	Telenor	0.8138	2,479,900		17.21%
	Hi3G	0.8138	1,854,900		12.87%
SI	Telekom Slovenije	1.1400	<i>confidential</i>	5,998,1551	<i>confidential</i>
	Si.mobil	1.1400	<i>confidential</i>		<i>confidential</i>
	Telemach Mobil	1.1400	<i>confidential</i>		<i>confidential</i>
	T-2	1.1400	<i>confidential</i>		<i>confidential</i>

SK	Orange Slovensko, a.s.	1.2260	confidential	confidential	38.07%
	Slovak Telekom, a.s.	1.2260	confidential		31.33%
	O2 Slovakia, s.r.o.	1.2260	confidential		29.08%
	Swan a.s.	1.2260	confidential		1.52%
TR	Turkcell	0.7847	34,244,087	73,235,783	46.76%
	Vodafone	0.8098	22,012,851		30.06%
	Avea	0.9291	16,978,845		23.18%
UK	EE	0.9418	confidential	84,882,326	confidential
	O2	0.9418	confidential		confidential
	Vodafone	0.9418	confidential		confidential
	H3G	0.9418	confidential		confidential

Notes to Table 7

BE: Subscribers = number of active simcards as of the 1st of January 2016 - Prices are nominal prices
BG:

All data includes number of post-paid and prepaid active mobile subscribers. Number of post-paid active subscribers means number of subscribers with a valid contract. Number of prepaid active subscribers means numbers of subscribers that have made or received a call, sent an SMS or MMS or used data services at least once in the last three months. The number of the M2M SIMs is excluded.

CH: Subscriber base as of 31.12.2015

CZ: Regulated MTR is defined as a single price per minute. SIM cards filled in column "rest of operators" are MVNOs (Service Providers) with no MTR regulation - however, termination is carried out by their MNOs for regulated rates. Also we provide the total number of SIM cards as of 30th June 2015 - data for the whole year 2015 are not yet available.

DE: Current MTR are valid from 01.12.2015 until 30.11.2016. They are preliminary and still subject to phase II investigation.

Number of subscribers are as of 3th quarter 2015.

DK: Subscribers as of mid-2015

Subscribers for the operators Mundio and Lycamobile is not publish as the number of subscribers are below the discretion limit of 5 pct. of the total market share.

EL: Active subscribers as of 30/09/2015 (datacards, M2M not included)

FI: Market shares (%) in terms of subscriptions as of 30.6.2015. Altogether, the market share of the three biggest operators is 99 %. The amount of mobile subscription was 9 420 000 as of 30.6.2015.

FR: Contrary to the previous reports, the total number of mobile subscribers is now given excluding MtoM SIM cards, which explains the apparent drop of around 8 million subscribers between July 2015 and January 2016.

IE: Telefonica Ireland Limited subscriptions data is incorporated with Hutchison 3G Ireland Limited subscriptions data.

In December 2012 Vodafone issued appeal proceedings with respect to ComReg's MTR decision (http://www.comreg.ie/_fileupload/publications/ComReg12125.pdf (ComReg Document 12/125)). For information purposes, Vodafone and ComReg have reached an agreement in respect of these proceedings. Please see ComReg Decision D02/16 (with attached court order) of 16 February 2016.

IS: Subscriber data for 1.1.2016 not yet available – data as of 1.7.2015

LT: Subscribers at Q3 2015.

LU: data as of 07/2015

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) , Price cap based on Pure-LRIC.

FYROM, HR, MT, TR: Data as of end Q3 2015

NO: Numbers of subscribers are provided as 30.06.2015. The total number of subscribers according to 1st of January 2016 will not be available before Q2 2016.

PL: Subscribers as of 31.12.2014.

RO: The number of subscribers refers to the number of active SIM cards.

RS: Termination rates are as of 01/01/2016. Provided numbers of subscribers are for 2014.

Annex 6 Regulatory model implemented to calculate MTRs

Table 8

Jan-16	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 01/01/2016 until 30/06/2016	Period 2 - From 01/07/2016 until 31/12/2016	Period 3 - From 01/01/2017 until 30/06/2017	Period 4 - From 01/07/2017 until 31/12/2017	Period 5 - From 01/01/2018 until 30/06/2018
AT	BU-LRIC	adopted		0.8049	0.8049			
BE	BU-LRIC	adopted		1.1800				
BG	Pure BU LRIC	adopted	01/07/2013					
CH								
CY	Benchmark BU-LRIC			0.0099	0.0099			
CZ	pure BU-LRIC	adopted	01/07/2013					
DE	BU-LRAIC+			1.6600	1.6600			
DK	BU-LRIC	adopted		0.7252	0.7252			
EE	Benchmark BU-LRIC	adopted	01.01.2013	1.0000	0.9200	0.9200		
EL	BU LRIC	adopted	01/01/2013	1.0810	1.0810			

ES	BU LRIC		10/05/2012	1.0900	1.0900	1.0900	1.0900	1.0900
FI	Other (FDC)	adopted		1.2500	1.2500	1.2500	1.2500	1.2500
FR	BU LRIC	adopted	01/01/2013	0.7600	0.7600	0.7400	0.7400	
HR	Pure BU LRIC	adopted		0.8265				
HU	BU-LRIC	adopted	01.04.2015	0.5469	0.5469	0.5469	0.5469	Not yet decided
IE	other	adopted	01/09/2016	2.6000	0.8400	0.8200	0.8200	0.7900
IS	Benchmark BU-LRIC	notified		0.9904	0.9904			
IT	BU-LRIC	adopted		0.9800	0.9800	0.9800	0.9800	
LI	Benchmarking	adopted		3.5951	3.5951			
LT	Benchmarking BU-LRIC	adopted	01/08/2014	1.0400				
LU	Pure BU-LRIC	adopted	01/04/2015	0.9700	0.9700			
LV	Benchmark BU-LRIC	adopted	01/07/2014	1.0500	1.0500			
ME	CCA LRIC Top down	adopted		1.1800				
FYROM	BU LRAIC+							
MT	Pure BU-LRIC	adopted	01/04/2014	0.4045	0.4045			
NL								

NO	BU-LRIC	adopted	01/07/2015	0.8032	0.8032	0.6961	0.6961	
PL	Pure BU LRIC	adopted	01/07/2013	1.0062	1.0062	1.0062	1.0062	1.0062
PT	Pure BU LRIC	adopted	31/12/2012	0.8300	0.8100	0.8100		
RO	Pure BU LRIC	adopted	01/04/2014	0.9600				
RS	Benchmarking			2.8382	2.2755	1.7129		
SE	BU LRIC	adopted	01/07/2013	0.8138	0.6160	0.6160	0.5569	0.5569
SI	Pure BU LRIC	adopted	01/09/2014	1.1400	1.1400	1.1400	1.1400	1.1400
SK	Pure BU LRIC	adopted	01/08/2013	1.2260				
TR	BU LRAIC+							
UK	BU LRIC	adopted	01/04/2013	0.8189	0.6960	0.6922	0.6883	

Notes to Table 8

BE: 0,74c€/minute proposed in national consultation. Timing of the entry in force of the final decision still to be determined.

Besides, the proposed tariff of 0.74 will be most likely reviewed before adoption (work in progress).

On 1 January 2013, the last step of the MTR glide path set by the Belgian regulator (BIPT) in June 2010 for the 2010-2013 period entered into force. Since 1 January 2013, MTRs in Belgium have been fully symmetric at a rate of 1.18 euro cents/min (incl. inflation). At present the BIPT reviews the analysis of the mobile termination market and the MTR cost model.

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 CRC is in process of updating the BULRIC model.

CH: MTRs are not regulated.

CY: Please note that from 1/1/2016 and until the results of our own BULRIC model (consistent with the TR Recommendation) are finalized, the national regulation imposes that from 1/1/2016 the applied MTRs are based on the average rate of all E.U. countries that have already imposed the results of a BULRIC (consistent with the TR Recommendation), 0.99c/minute. For MTN, Cablenet and Cyta the rate is symmetric (0.99c/minute), for the newly established MNO namely Primetel there is a glide path imposed, specifically a 40% above the regulated rate for 2016 and 20% above for 2017. The results of our own BULRIC are expected to be finalized by the end of 2016.

CZ: We do not apply any glide path mechanism for time period 01/01/2016 - 30/06/2018. According to the 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 is currently working on update of its pure BU-LRIC model so that it takes into account also LTE network and traffic. However, the upcoming updated level of MTR is still unknown. Regulated MTR is calculated in accordance with Recommendation 2009/369/ES.

DE: No glide path regulation. Current MTR (as indicated in Period 1 and Period II) are valid from 01.12.2015 until 30.11.2016. The decision is preliminary and still subject to phase II investigation.

EL: EETT is currently preparing the next market review. Until the adoption of the final measure (after the consultation and notification procedures) the price of 1.081eurocent/min will be applied.

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.

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 came into effect on 1th of December 2015. The cost-oriented maximum price for MTRs has been calculated based on FDC approach. Some of the operators have appealed to Supreme Administrative Court and the process is still going on.

FR: In period 4, the glide-path is only valid until 19/12/2017. Regulated MTRs after that date will be subject to next round of market analysis.

HR: HAKOM is currently in the process of updating MTR cost model. Please note that MRs are regulated only for the calls originated on A numbers belonging to the EU/EEA operators and terminated into the individual fixed networks in Croatia.

IE: • As previously advised:

- In December 2012, Vodafone issued appeal proceedings with respect to ComReg's MTR decision (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

• 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

• Vodafone and ComReg have reached an agreement in respect of proceedings entitled Vodafone v. ComReg Record No. 2012 No. 465 MCA and Record No. 450/2013 whereby Vodafone has withdrawn its challenge to the choice of Pure LRIC as a methodology in Decision D12/12 and ComReg has agreed to withdraw its appeal against the judgment of the High Court of 14 August 2013 (and the Supplemental Ruling of 21 November 2013) in those proceedings. Such withdrawal is without prejudice to ComReg's contentions in that appeal.

See http://www.comreg.ie/_fileupload/publications/ComReg1614.pdf

IS: Benchmark against BU-LRIC to be made in sept 2016 for validity in 2017. Notified 1 October to ESA and ratified 1 November - Number of mobile subscribers is not confidential - PTA published this data on its website.

LI: Operator specific information on MTR and Market Share is confidential - no publication.

Market analysis M7 and MTR decisions are available on : <http://www.llv.li/#/111026/m>

Last step of glide path, effective since 1/1/2013: 0.0765 CHF/min (cap)

Benchmarking method: The weighted average of the termination rates in Switzerland, 0.0765 CHF per minute as of 1 January 2011, served as a reference value for setting the termination rates of the Liechtenstein mobile operators in the context of the M7 market analysis.

MTR as of May 1, 2016 is 3.9 CHF-cents per minute (Jan 1 until April 30, 2016: 7.65 CHF-cents)

LT: The rate was calculated and based on Benchmarking methodology in 2014. In the end of 2015 RRT finalized market research and calculated new rate, based on Benchmarking methodology, the rate will be applied from 01/04/2016.

LV: Latvian NRA doesn't apply any glide path

PT: In August 6, 2015 ANACOM approved a new decision establishing the new MTR also in accordance with the EC Recommendation on Termination rates - BU-LRIC.

From 01.07.2016 (and until June next year) and from 01.07.2017 (and until June next year) the MTR will correspond to the values of the pure LRIC cost model adjusted in accordance with the inflation rate. Maximum values to be applied since the 1st of July 2016 were set at 0.81 cents/minute.

RO: The number of subscribers refers to the number of active SIM cards.

RS: Current MTR will be valid until 1st of May 2016. From 1st May 2016 until 31/12/2016 price will be 2.75 in RSD. From 01/01/2017 MTR in national currency will be 2.07 RSD and will be valid until new RATEL's decision.

SE: Glide path was applied for the period between 01/07/2011 and 30/06/2013

SK: RU has not applied any glide path.

TR: ICTA does not regulate MTRs via glide path, and the approvals don't occur periodically.

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.

Forecasts values are calculated assuming a 2% inflation rate.

Annex 7 SMS TR per operator as of 1 January 2016

Table 9

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>	3.1200	5,300,000	13,113,000	40.42%
	T-Mobile Austria	<i>n.a.</i>		3,800,000		28.98%
	Hutchison Drei Austria	<i>n.a.</i>		3,700,000		28.22%
BE	Belgacom	4.9600	4.9600	<i>confidential</i>	14 404 825	<i>confidential</i>
	Mobistar	4.9600		<i>confidential</i>		<i>confidential</i>
	KPN Belgium	4.9600		<i>confidential</i>		<i>confidential</i>
BG	Mobitel	<i>confidential</i>	confidential	<i>confidential</i>	<i>confidential</i>	39.64%
	Telenor Bulgaria	<i>confidential</i>		<i>confidential</i>		32.25%
	BTC	<i>confidential</i>		<i>confidential</i>		27.93%
CH	Swisscom	<i>confidential</i>	4.6704	6,625,000	10,881,594	60.88%
	Sunrise	<i>confidential</i>		2,414,000		22.18%
	Salt	<i>confidential</i>		1,842,594		16.93%
CY	Cyta	0.5500	0.6013	703,495	1,123,955	62.59%
	Primetel	0.7300		53,711		4.78%
	MTN	0.6800		359,499		31.99%
CZ	T-Mobile Czech Republic a.s.	<i>confidential</i>	confidential	<i>confidential</i>	<i>confidential</i>	39.15%
	O2 Czech Republic a.s.	<i>confidential</i>		<i>confidential</i>		31.41%
	Vodafone Czech Republic a.s.	<i>confidential</i>		<i>confidential</i>		23.03%
DE	T-Mobile	n.a.	n.a.	39,892,000	113,397,000	35.18%
	Vodafone	n.a.		30,216,000		26.65%
	Telefónica Germany GmbH & Co. OHG	n.a.		43,289,000		38.17%

DK	TDC	0.1488	0.1488	3,092,444	8,411,183	36.77%
	Telenor	0.1488		1,989,097		23.65%
	Telia	0.1488		1,482,272		17.62%
	Hi3G	0.1488		1,114,919		13.26%
EE	Telia Eesti AS	2.6000	2.2977	752,765	1,903,545	39.55%
	Elisa Eesti AS	2.1000		643,194		33.79%
	Tele2 Eesti AS	2.1000		507,586		26.67%
EL	Cosmote	3.0000	3.0000	<i>confidential</i>	12,681,641	<i>confidential</i>
	Vodafone	3.0000		<i>confidential</i>		<i>confidential</i>
	Wind	3.0000		<i>confidential</i>		<i>confidential</i>
ES	Movistar	2.5623	2.6333	15,734,734	50,673,326	31.05%
	Vodafone	2.3684		12,689,870		25.04%
	Orange	3.0000		11,545,070		22.78%
	Yoigo	2.7051		3,383,961		6.68%
FI	TeliaSonera Finland Oyj	<i>confidential</i>	<i>confidential</i>	N.A.	9,420,000	25.00%
	Elisa Oyj			N.A.		39.00%
	DNA Oy			N.A.		35.00%
FR	Orange	1.0000	1.0000	<i>confidential</i>	69,456,503	<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>	2,162,892	4,629,517	46,72%
	VIPnet	<i>n.a.</i>		1,599,357		34,55%
	Tele2	<i>n.a.</i>		867,268		18,73%
HU	T-Mobile	4,4779	4,4779	<i>confidential</i>	<i>confidential</i>	<i>confidential</i>
	Telenor	4,4779		<i>confidential</i>		<i>confidential</i>
	Vodafone	4,4779		<i>confidential</i>		<i>confidential</i>
IE	Vodafone Ireland Limited	3.1700		1,879,410		38.3%

	Three Ireland Hutchison Limited (formerly Hutchison 3G Ireland Limited)	3.1700	3.1700	1,568,633	4,902,909	32.0%
	Three Ireland Services (Hutchison) Limited (formerly Telefonica Ireland Limited)	3.1700				
	Meteor Mobile Communications Limited	3.1700		1,006,565		20.5%
	Tesco Mobile Ireland Limited			332,129		6.8%
	Lycamobile Ireland Limited	3.1700		<i>confidential</i>		<i>confidential</i>
IS	Siminn	2.7235	2.7235	149,588	423,544	35.32%
	Vodafone	2.7235		113,587		26.82%
	Nova	2.7235		141,594		33.43%
	365/Tal	2.7235		15,496		3.66%
IT	Telecom Italia	<i>confidential</i>	3.3109	30,022,754	93,072,439	32.3%
	Vodafone Omnitel N.V.	<i>confidential</i>		24,670,249		26.5%
	Wind Telecomunicazioni	<i>confidential</i>		21,344,634		22.9%
	H3G S.p.A.	<i>confidential</i>		10,210,167		11.0%
	Poste Mobile	<i>confidential</i>		3,551,000		3.8%
LI	Salt (Liechtenstein) AG	<i>confidential</i>	5,7909	<i>confidential</i>	11,054	<i>confidential</i>
	Swisscom (Schweiz) AG	<i>confidential</i>		<i>confidential</i>		<i>confidential</i>
	Telecom Liechtenstein AG	<i>confidential</i>		<i>confidential</i>		<i>confidential</i>
LT	Tele2	0.7250	0.9059	1,301,541	4,235,577	30.73%
	Omnitel	0.7250		1,817,305		42.91%
	Bite Lietuva	1.4500		1,036,590		24.47%
LU	EPT	n.a.	n.a.	455,500	873,700	53.00%
	Tango	n.a.		286,600		31.00%
	Orange	n.a.		131,600		16.00%
LV	Tele2	2.1300	2.1300	924,721.00	2,579,184	35.85%
	Latvijas Mobilais Telefons	2.1300		916,467.00		35.53%

	Bite Latvija	2.1300		490,249.00		19.01%
ME	Telenor	2.2000	2.2000	390,573	1,007,890	38.75%
	Crnogorski Telekom	2.2000		329,844		32.73%
	Mtel	2.2000		287,473		28.52%
FYROM	T Mobile Macedonia	0.8118	0.8118	1,035,279	2,209,280	46.86%
	ONE Telecommunication services	0.8118		575,000		26.03%
	VIP Macedonia	0.8118		599,001		27.11%
MT	GoMobile	1.1824	1.5347	215,376	567,607	37.94%
	Melita Mobile	1.8507		88,355		15.57%
	Vodafone	1.7235		253,942		44.74%
NL	KPN	5.6000	5.6000	6,694,000	20,234,000	31.72%
	Vodafone	5.6000		5,068,000		24.82%
	T-Mobile	5.6000		3,677,000		19.27%
NO	Telenor	3.7481	3.7481	2,973,155	5,841,088	50.90%
	TeliaSonera	3.7481		2,219,021		37.99%
	Lyca	3.7481		195,210		3.34%
	Phonero	3.7481		168,519		2.89%
PL	Orange Polska S.A.	1.1727	1.1727	confidential	56,905,306	confidential
	Polkomtel sp. z o.o.	1.1727		confidential		confidential
	P4 sp. z o.o.	1.1727		confidential		confidential
	T-Mobile Polska S.A.	1.1727		confidential		confidential
PT	MEO	confidential	1.2700	confidential	16,790,405	46,48%
	VODAFONE	confidential		confidential		30,35%
	NOS	confidential		confidential		21,65%
RO	Vodafone Romania S.A.	confidential	2.3000	confidential	23,100,000	confidential
	Orange Romania S.A.	confidential		confidential		confidential
	TELEKOM RMC S.A.	confidential		confidential		confidential
	RCS & RDS S.A.	confidential		confidential		confidential
RS	Telekom Srbija	1.6549		confidential		confidential

	Telenor	1.6549	1.6549	<i>confidential</i>	9,344,977	<i>confidential</i>
	VIP mobile	1.6549		<i>confidential</i>		<i>confidential</i>
SE	TeliaSonera	3.2250	3.2250	5,352,600	14,413,700	37.14%
	Tele2	3.2250		3,960,100		27.47%
	Telenor	3.2250		2,479,900		17.21%
	Hi3G	3.2250		1,854,900		12.87%
SI	Telekom Slovenije	Bill & Keep	Bill & Keep	<i>confidential</i>	<i>confidential</i>	52.50%
	Si.mobil			<i>confidential</i>		30.10%
	Telemach Mobil			<i>confidential</i>		14.07%
	T-2			<i>confidential</i>		3.33%
SK	Orange Slovensko, a.s.	2.5000	2.500	<i>confidential</i>	5,998,155l	<i>confidential</i>
	Slovak Telekom, a.s.	2.5000		<i>confidential</i>		<i>confidential</i>
	O2 Slovakia, s.r.o.	2.5000		<i>confidential</i>		<i>confidential</i>
	Swan a.s.	2.5000		<i>confidential</i>		<i>confidential</i>
TR	Turkcell	0.1350	0.1379	34,244,087	73,235,783	46.76%
	Vodafone	0.1350		22,012,851		30.06%
	Avea	0.1475		16,978,845		23.18%
UK	EE	<i>confidential</i>	2.2654	<i>confidential</i>	84,882,326	<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>		<i>confidential</i>

Notes at Table 9

BE: National incoming SMS termination

Subscribers = number of active simcards as of the 1st of January 2016 - Prices are nominal prices

BG: All data includes number of post-paid and prepaid active mobile subscribers. Number of post-paid active subscribers means number of subscribers with a valid contract. Number of prepaid active subscribers means numbers of subscribers that have made or received a call, sent an SMS or MMS or used data services at least once in the last three months. The number of the M2M SIMs is excluded.

CZ: All Czech SMP-operators use the same level of SMS call termination rates all the time without any differences between peak time and off peak time.

DE: Number of subscribers are as of 3th quarter 2015.

SMS call termination rates are not regulated in Germany

DK: In 2015, DBA withdrew all SMP remedies on the wholesale SMS termination market effective as of 1 January 2016. The last regulated SMS termination rate that applied prior to this deregulation was 1.11 Danish øre/SMS. This price was still in effect as of 1 January 2016 but the operators have notified price increases to 10 Danish øre/SMS (1.34 eurocents) that will take effect as of 1 April 2016.

EL: Active subscribers as of 30/09/2015 (datacards, M2M not included)

FI: SMS termination rates are not regulated in Finland.

HR, TR: Data as of end Q3 2015.

HU: SMS termination rate in national currency has not changed. The HUF / Eur exchange rate has changed only.

IT: Estimated data.

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 up to Q3 2015 (January - September 2015)

NL: This is the last known commercially agreed SMS-termination rate. Rate is from 2012 and thus 3 years old.

Subscriber numbers from 01/2015

PL: Subscribers as of 31.12.2014.

RS: Provided numbers of subscribers are for 2014.

SE: PTS does not monitor the SMS wholesale termination rates. The current reference offers indicates a termination rate of SEK 0.30. However, statistics shows that the average retail revenue per sent SMS was SEK 0,18 in 2015 H1, 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.

Annex 8 Abbreviations and Exchange rates

Table 9 – Abbreviations

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

Table 10 – Exchange Rates¹²

COUNTRY	1 EURO
BG	1.96
CH	1.08
CZ	27.06
DK	7.46
HR	7.62
HU	312,65
IS	141.36
LI	1.08
FYROM	61.59
NO	9.34
PL	4.26
RO	4.46
RS	120.85
SE	9.30
TR	3.19
UK	0.72

¹² 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 9 Glossary

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