

Termination rates at European level

January 2017

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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 February 2017, referring – if not differently indicated – to data as of 1st January 2017. It includes rates from the thirty seven (37) NRAs¹ that provided responses to our request.

As of January 2017, the situation regarding TRs in Europe can briefly be described as follows (see also Figures 1-3):

- The lowest regulated FTR simple average of incumbents at the European level (all 37 countries) stands at 0.36 eurocents per minute.
- The lowest FTR simple average of European Union incumbents (only EU member states) stands at 0.21 eurocents per minute.
- The MTR simple average (Avg (s)) at the European level (all 37 countries) stands at 1.10 eurocents per minute, whereas the weighted average² (Avg (w)) at European level is estimated at 0.97 eurocents per minute.
- The MTR simple average at the EU level (only EU member states) stands at 0.94 eurocents per minute, whereas the weighted average at EU level is estimated at 0.95 eurocents per minute.

¹ 28 EU member states plus 4 EFTA states (Switzerland, Iceland, Norway and Liechtenstein) and 5 candidate states Albania, Montenegro, FYROM, Serbia and Turkey.

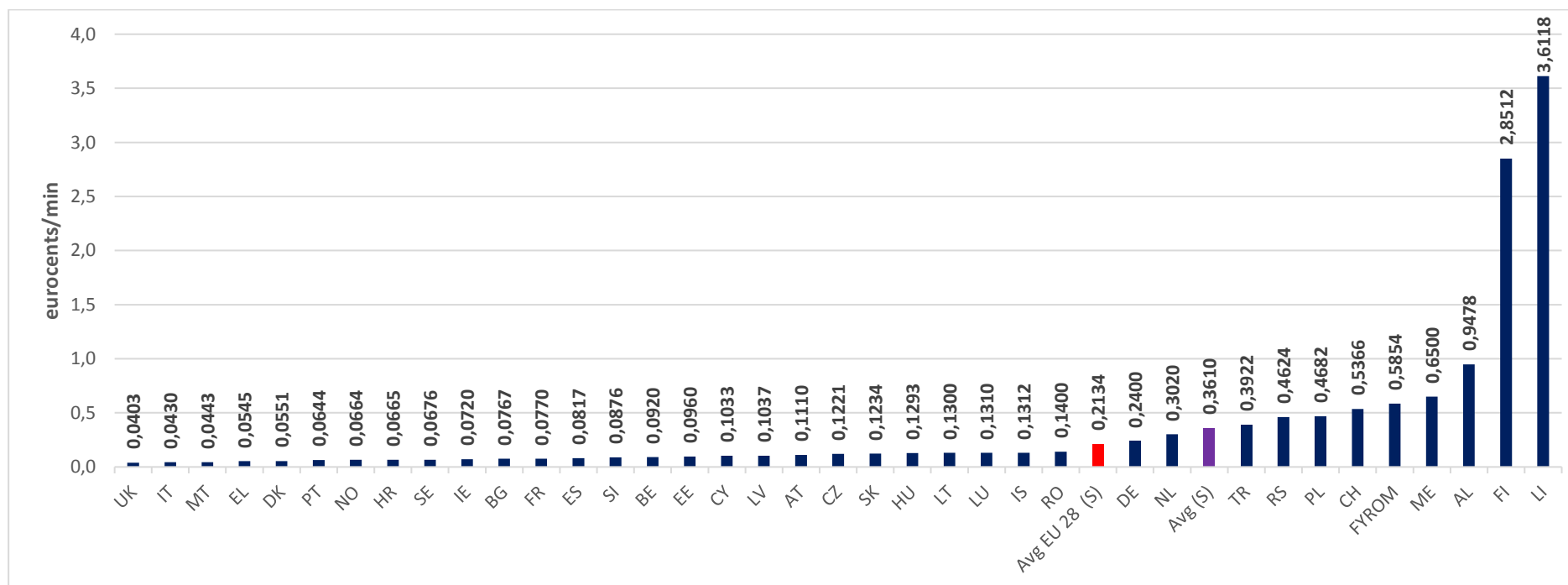
² The weighted averages weight each country's average rate with the share of the country's subscribers (total subscribers per country / total subscribers in all countries).

- The SMS TR simple average at the European level is 2.38 eurocents per SMS, whereas the weighted average is reported to be 2.01 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 fourth quarter of the year (Q4 2016) was used for the calculation of FTRs, MTRs and SMS TRs. The exchange rates used are reported in [Annex 8](#).

Overview of incumbents' lowest^{3,4,5} regulated fixed termination rates per country – January 2017 (euro cents per minute of service)

Figure 1 FTRs



Source: NRAs, BEREC

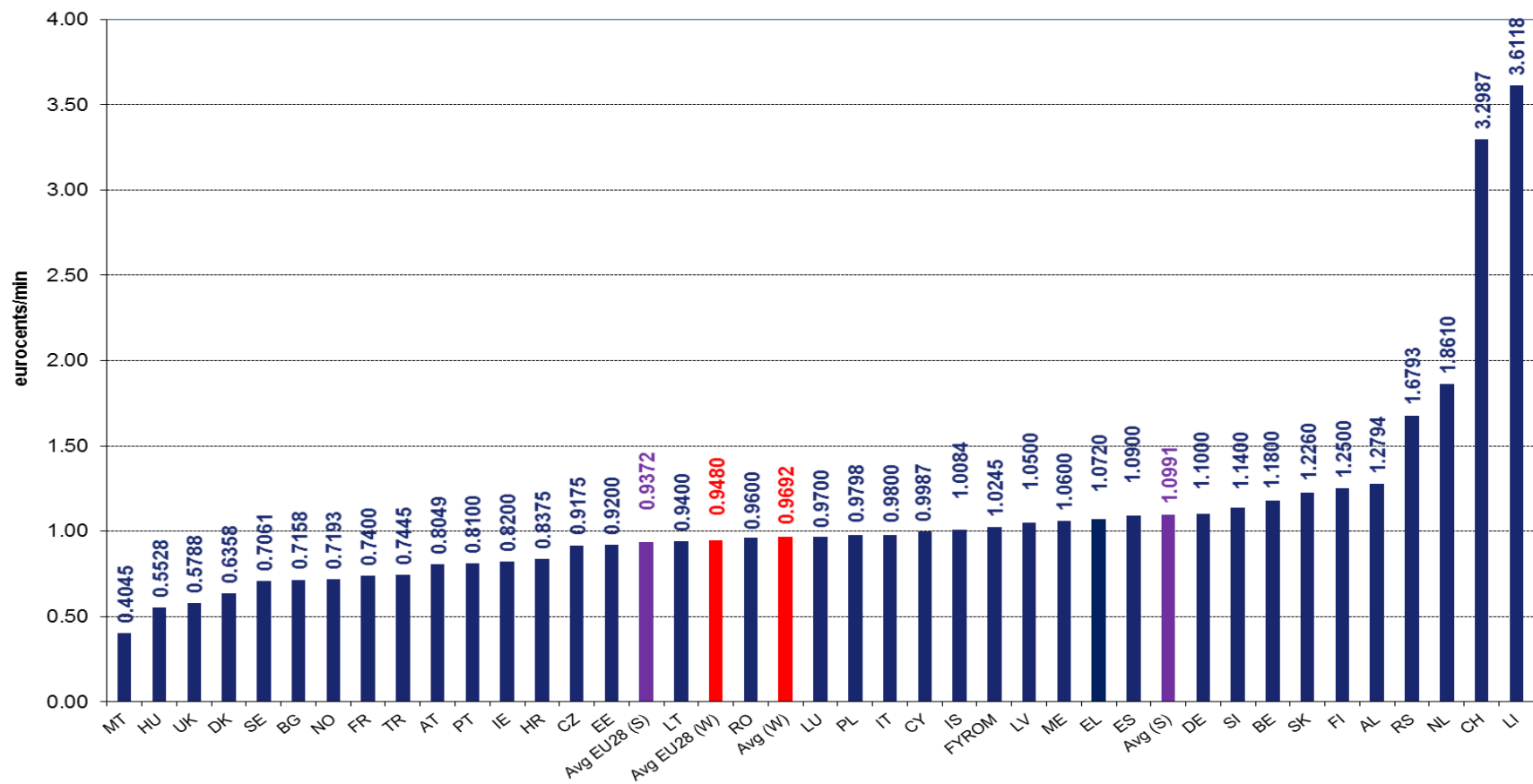
³ The lowest regulated rate of the incumbent. In case the operator uses only one rate, it is considered as a single rate.

⁴ Due to the large number of incumbents present in Finland a weighted average is included for comparison.

⁵ The most recent German FTR rate benchmarked at 0.1 eurocent is currently in a phase II procedure.

MTR per country – January 2017 (eurocents per minute of service)

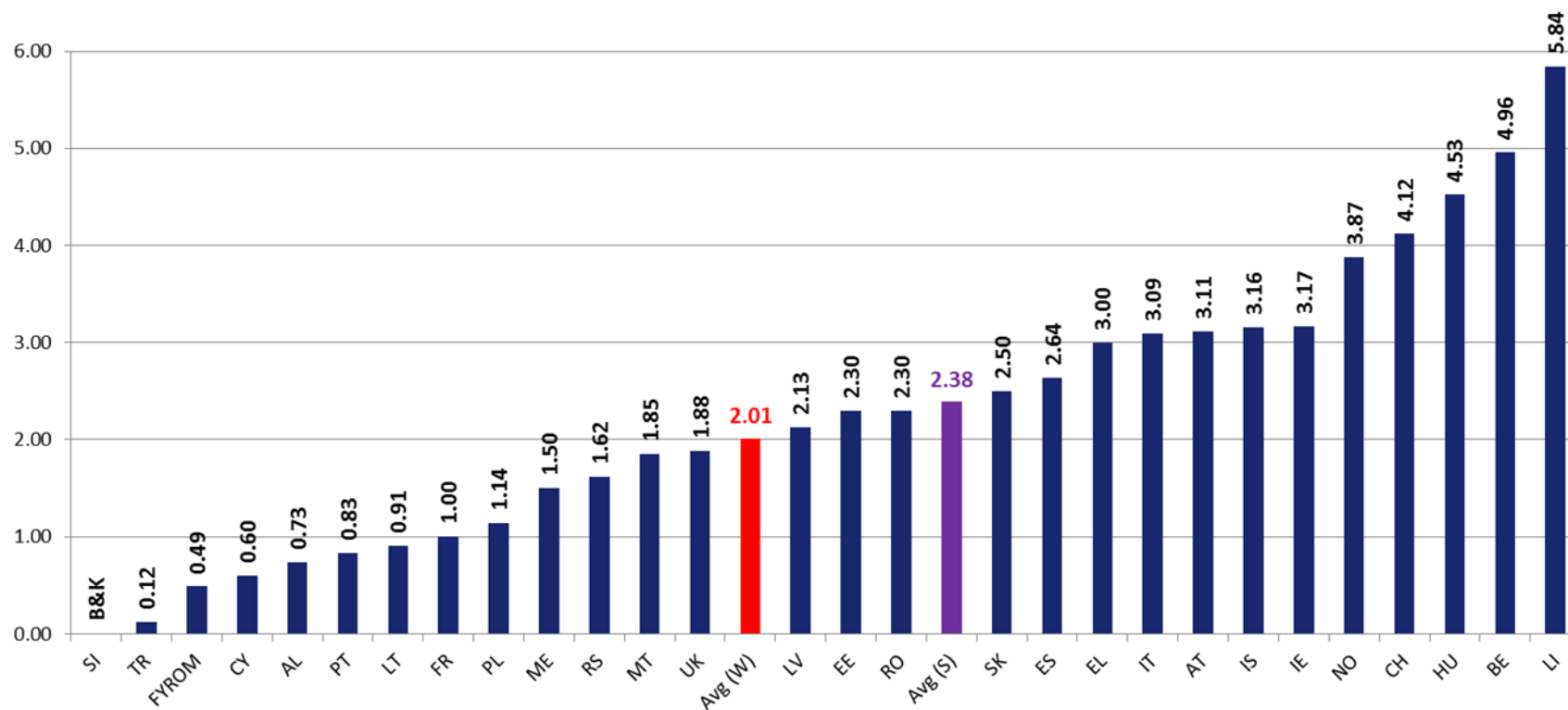
Figure 2 MTRs



Source: NRAs, BEREC

SMS TR per country – January 2017 (eurocents per message)

Figure 3 SMS TRs



Source: NRAs, BEREC

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 (2009/396/EC). 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 1⁶, 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). Due to increasing symmetry and decreasing relevance of layers the report features a ranking of the lowest regulated rates as well as a weighted average of peak and off-peak rates in the table of [Annex 1](#).

The “lowest regulated rate” refers to the lowest of the rates of an operator. For operators that have more than one regulated rate, these are ranked in ascending order (first lowest, second lowest, etc.) If there is a single regulated rate, it is considered as “the lowest regulated rate”.

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.

⁶ Layer 1 is defined as the closest possible interconnection level to the network termination point.

- 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. In the last column, a weighted average of peak/off-peak prices is provided.

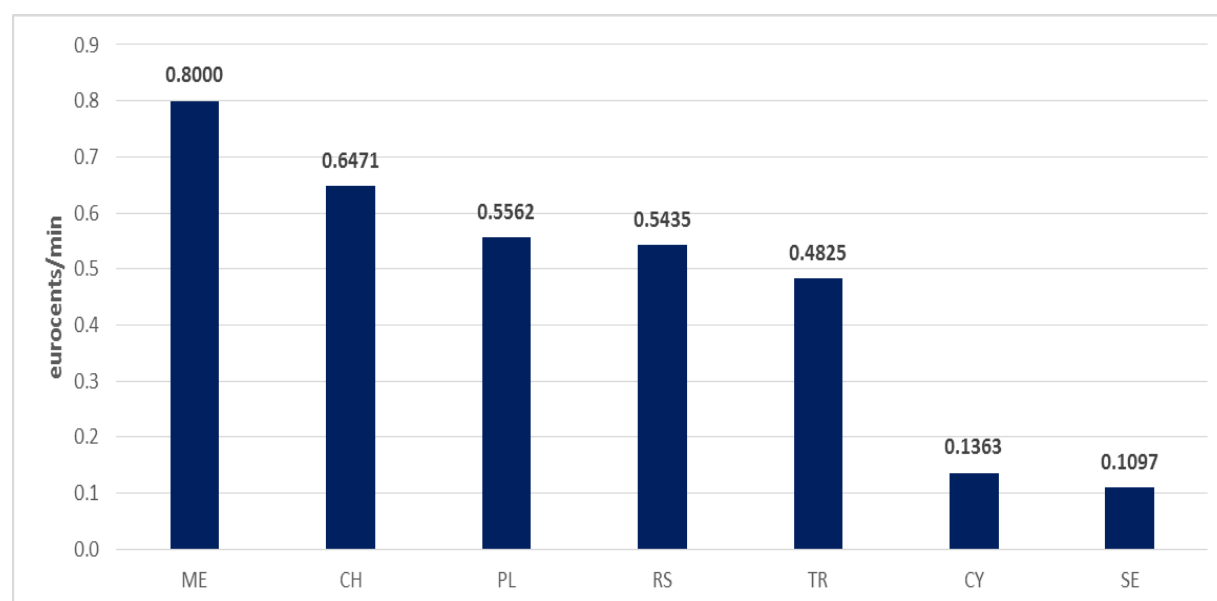
The lowest regulated rate is the rate applied by the operator at the level of interconnection that is closest to the network termination point. The second and third lowest regulated rates apply only to operators that have more than one regulated rate/interconnection layer.

Only four countries out of 37 maintain interconnection services in fixed networks at three different levels in the hierarchy of the incumbents' networks and 3 countries have 2 layers of interconnection.

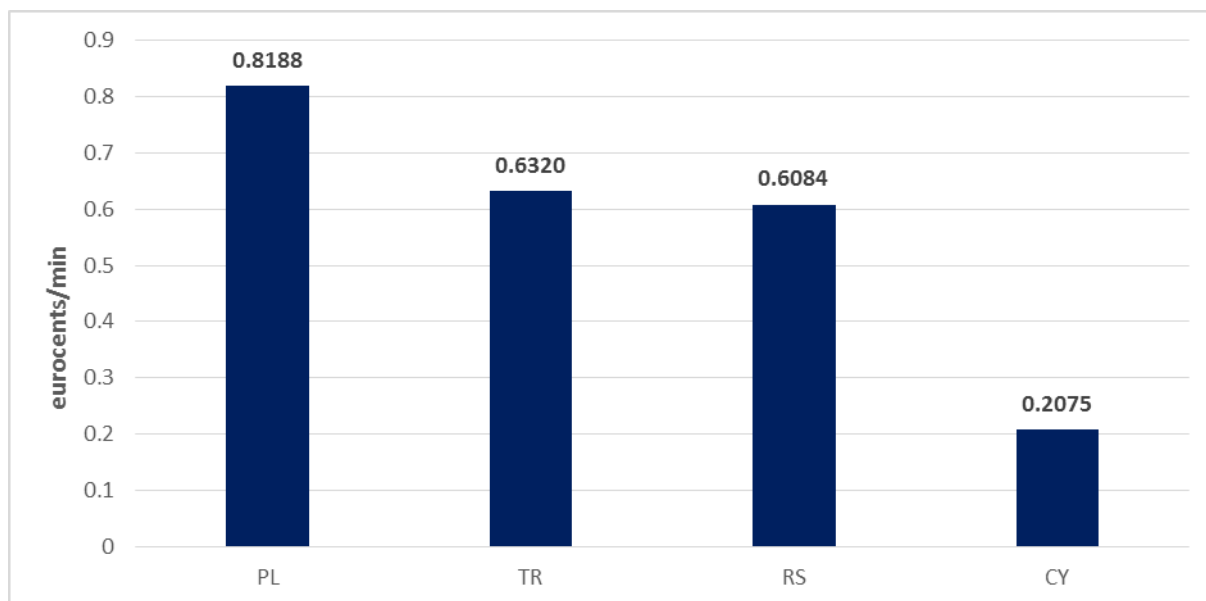
Incumbents' fixed termination rates per lowest regulated rate and country

For more information on the individual lowest rates of respective incumbents, please refer to Figure 1 and respectively [Annex 1](#).

Figure 4 Incumbents' second lowest regulated fixed termination rate per country



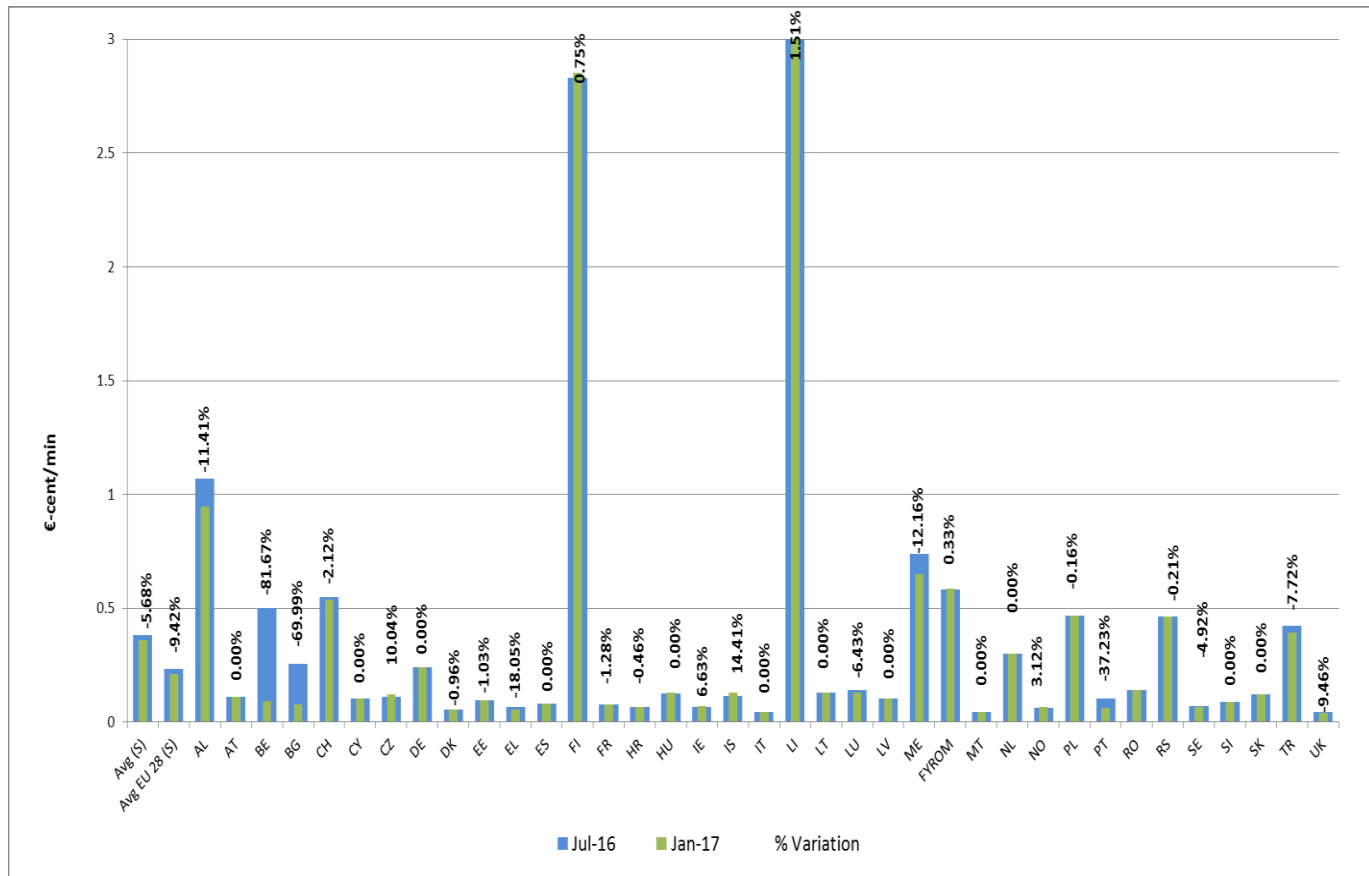
Source: NRAs, BEREC

Figure 5 Incumbents' third lowest regulated fixed termination rate per country

Source: NRAs, BEREC

2.3 Short term evolution of fixed incumbents' FTRs (from July 2016 to January 2017)

Figure 6 Incumbents' lowest regulated rate per country (eurocents/min)

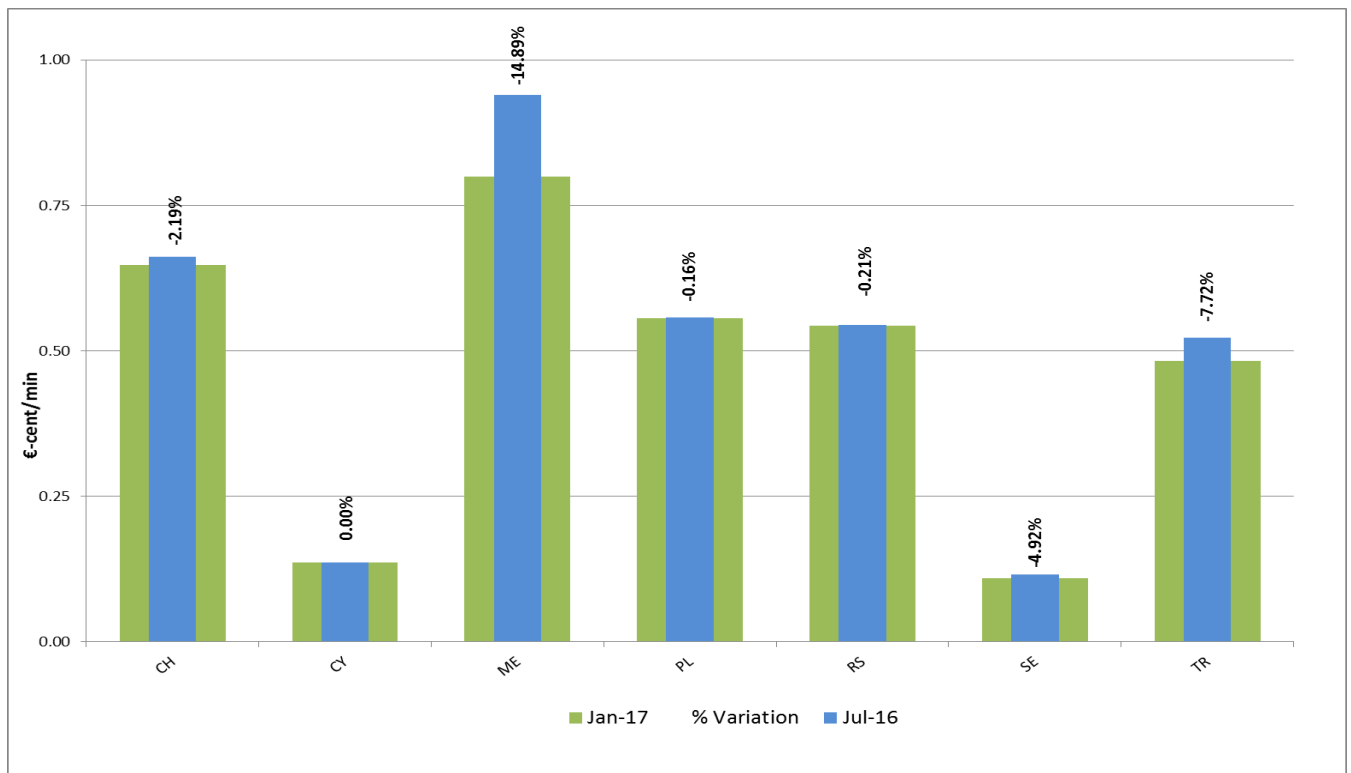


Source: NRAs, BEREC

The above chart shows the variation in percentage of the lowest regulated fixed termination rate of incumbents between July 2016 and January 2017. For easier comparison, rates are stated in eurocents. The most significant decreases are of Belgium 81.67%, Bulgaria by 69.99% and Portugal, where rates dropped by 37.23%.

Bulgaria, Albania, Switzerland, Croatia and Czech Republic report changes in their FTRs in national currency. The most significant decrease of 70% present in Bulgaria. Albania's FTR decreased by 12.84%. Further decreases of 3.58% reported in Switzerland, of 0.22% in Croatia. The FTR increased in the Czech Republic by 10% in national currency.

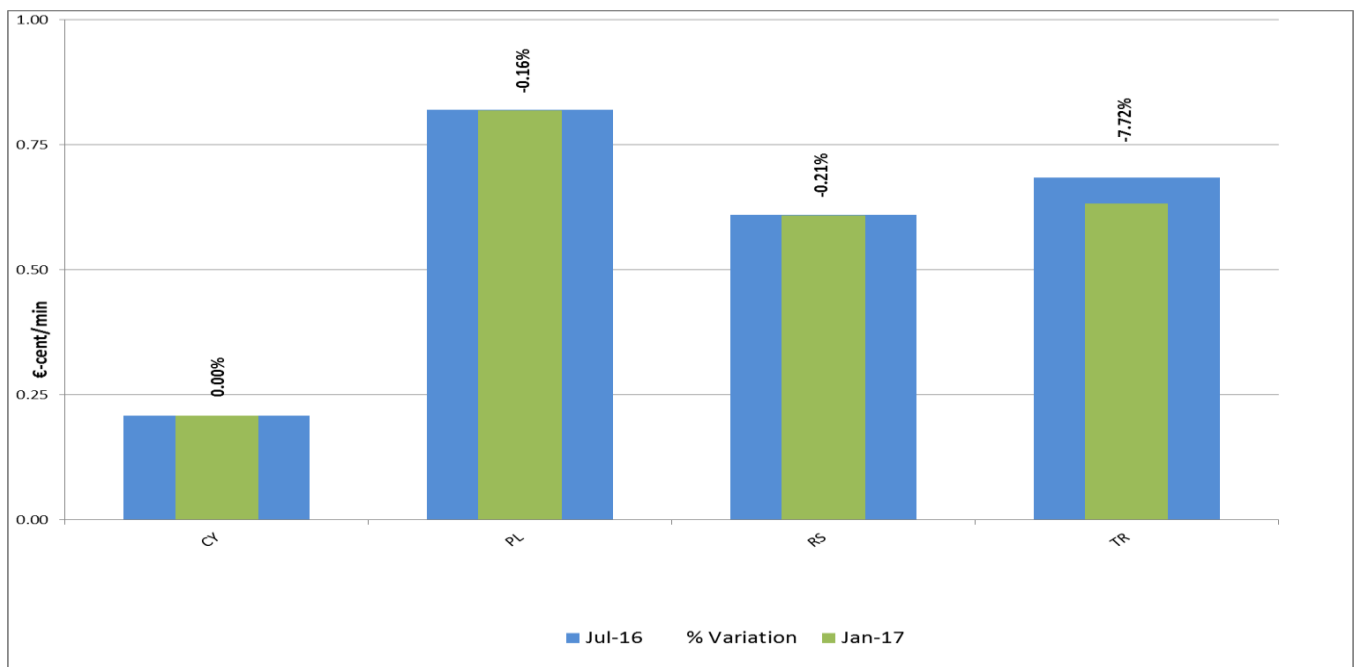
Figure 7 Incumbents' second lowest regulated rate per country (eurocents/min)



Source: NRAs, BEREC

FTRs, in the national currency, decreased in Switzerland by 3.64%.

Figure 8 Incumbents' third lowest regulated rate per country (eurocents/min)



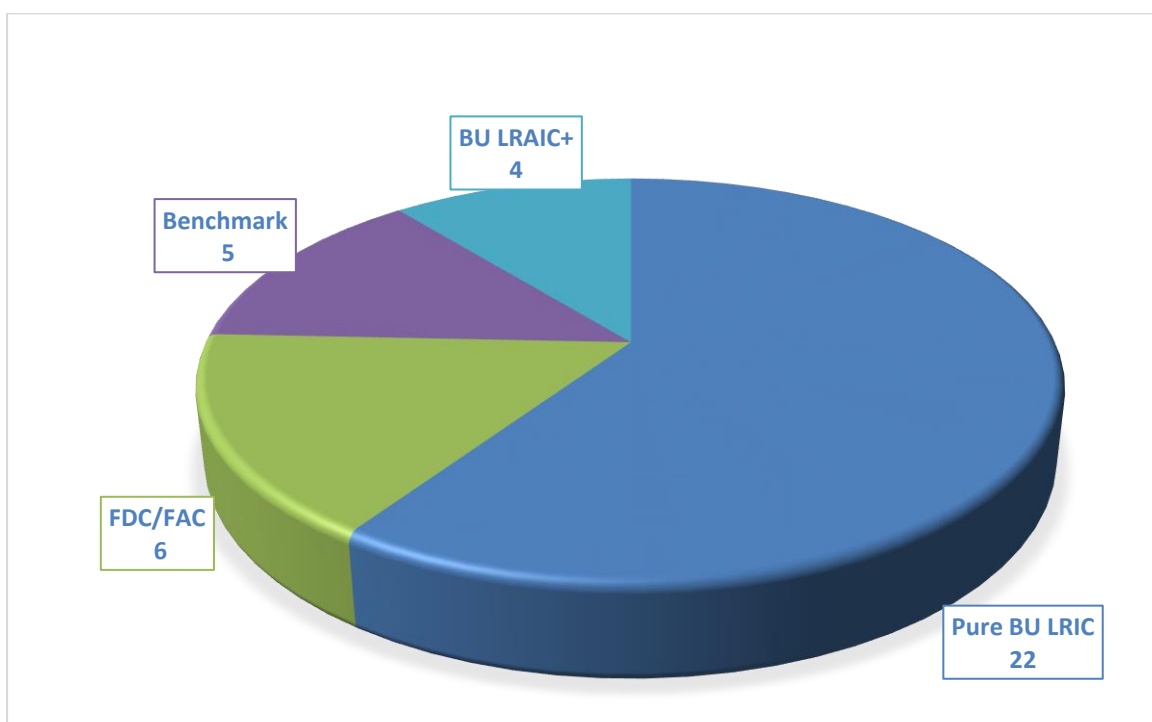
Source: NRAs, BEREC

No changes reported by any of the countries in the FTRs in national currency.

2.4. FTR regulatory model implemented and symmetry overview

22 of the NRAs use Pure BULRIC models to set FTRs. The second most common model is FDC/FAC, used by 6 NRAs. 5 NRAs use Benchmarking approaches and BU LRAIC+ is used by 4 NRAs.

Figure 9 Cost accounting models used by NRAs



Source: NRAs, BEREC

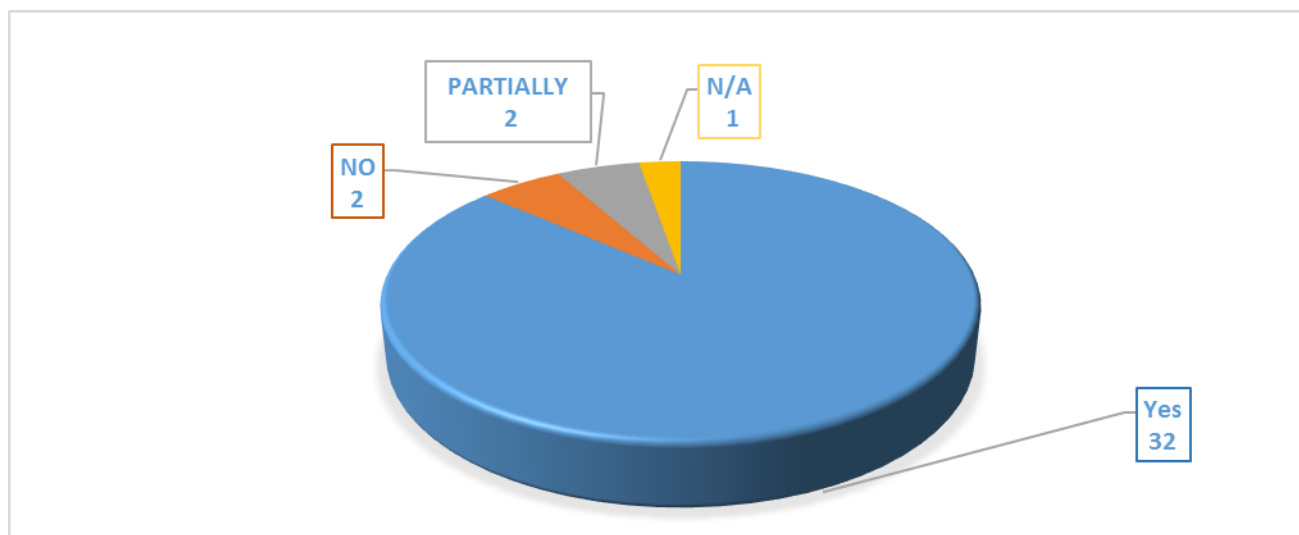
For more information consult [Annex 2](#).

According to the European Commission Recommendation of 7 May 2009 on the Regulatory Treatment of Fixed and Mobile Rates in the EU states, NRAs should set termination rates based on the costs incurred by an efficient operator. This implies that they would also be symmetric. The above figure shows compliance with the recommendation in case of 22 NRAs using Pure BU LRIC models. 5 NRAs are using Benchmarking while 4 of these NRAs are using Benchmarking based on Pure BU LRIC.

Furthermore, in most of the respondent countries (32) FTRs are symmetric across all operators. 2 of the NRAs reported partial symmetry while rates are not symmetric only in 2 of

the reporting countries. In one of the cases, there is only one operator in the country, therefore, symmetry is not applicable.

Figure 10 FTRs Symmetry



Source: NRAs, BEREC

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

2.5. 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 2017 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 MTRs⁷.

The present overview of MTRs is based upon the results of a request for information sent to all NRAs in January 2017. It includes data from thirty-seven (37) 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 eurocents/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 37 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

⁷ See Annex 6 – Table 8

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

pre-paid consumers, but also in the case of services considered, some countries are including data-only SIM cards and/or M2M SIM cards).

Regarding the short-term MTR evolution (from July 2016 to January 2017), 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 (e. g. due to a change in methodology in the calculation of subscriber rates) 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 2017)

Table 1 - Average MTR per country

	Average MTR per country (eurocents)
AL	1.2794
AT	0.8049
BE	1.1800
BG	0.7158
CH	3.2987
CY	0.9987
CZ	0.9175
DE	1.1000
DK	0.6358
EE	0.9200
EL	1.0720
ES	1.0900
FI	1.2500
FR	0.7400
HR	0.8375
HU	0.5528

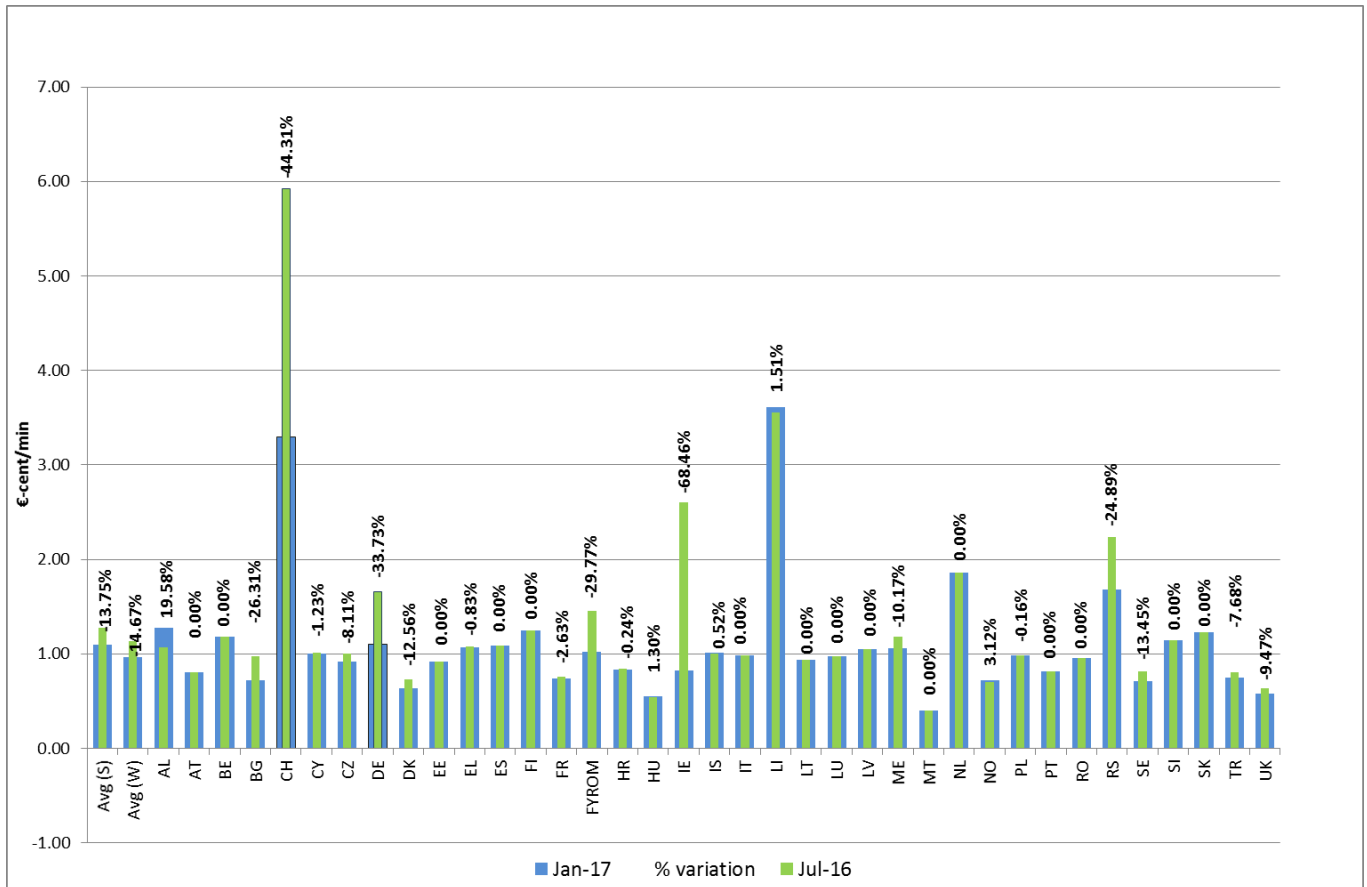
⁹ This only affects short-term MTR evolution (figure 11) because the percentage of tariff variation in each country (figure 12) has been calculated by comparing rates expressed in terms of the national currency.

IE	0.8200
IS	1.0084
IT	0.9800
LI	3.6118
LT	0.9400
LU	0.9700
LV	1.0500
ME	1.0600
FYROM	1.0245
MT	0.4045
NL	1.8610
NO	0.7193
PL	0.9798
PT	0.8100
RO	0.9600
RS	1.6793
SE	0.7061
SI	1.1400
SK	1.2260
TR	0.7445
UK	0.5788
Average (S)	1.0991
Average (W)	0.9692
Average EU28 (S)	0.9372
Average EU28 (W)	0.9480

Figures 11 and 12 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.

Variation of MTRs per country (from July 2016 to January 2017)

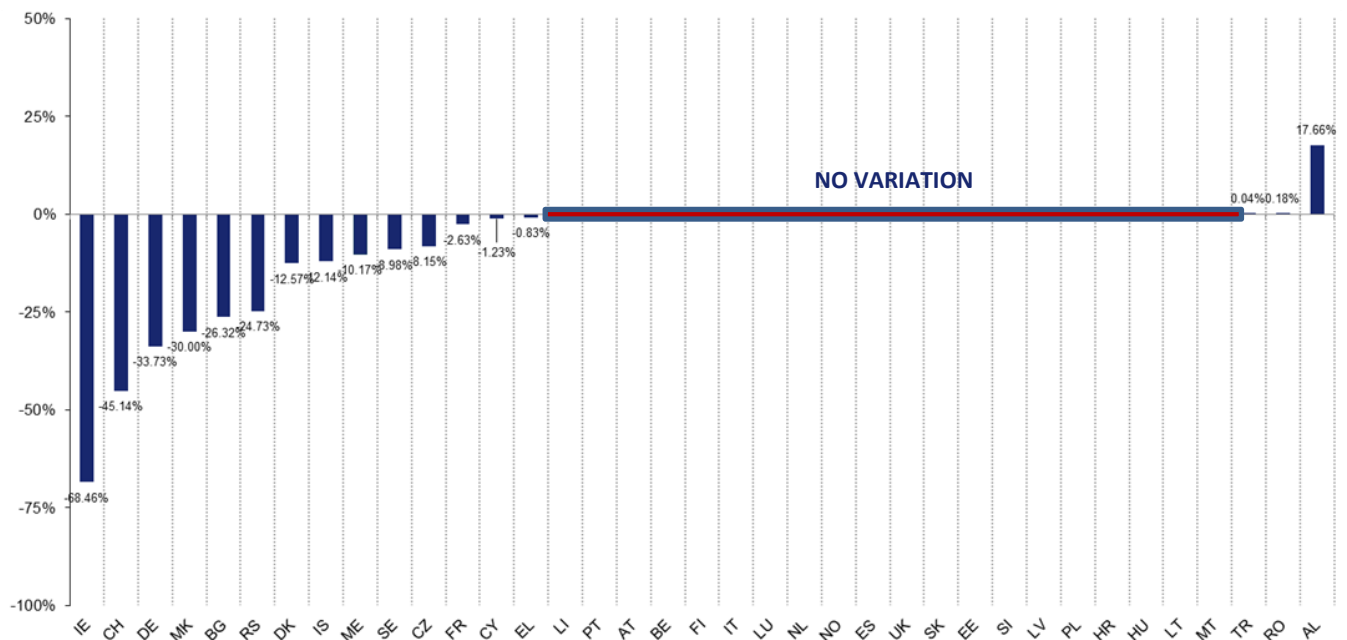
Figure 11 Variation in eurocents and %



Source: NRAs, BEREC

Variation of average MTRs in national currency per country (from July 2016 to January 2017)

Figure 12 Variation in national currency (%)



Source: NRAs, BEREC

Most countries did not experience a real short term variation of MTRs. Ireland performed the highest decrease followed by Switzerland. Albania being the only country with a significant increase of the average MTR from July 2016 to January 2017.

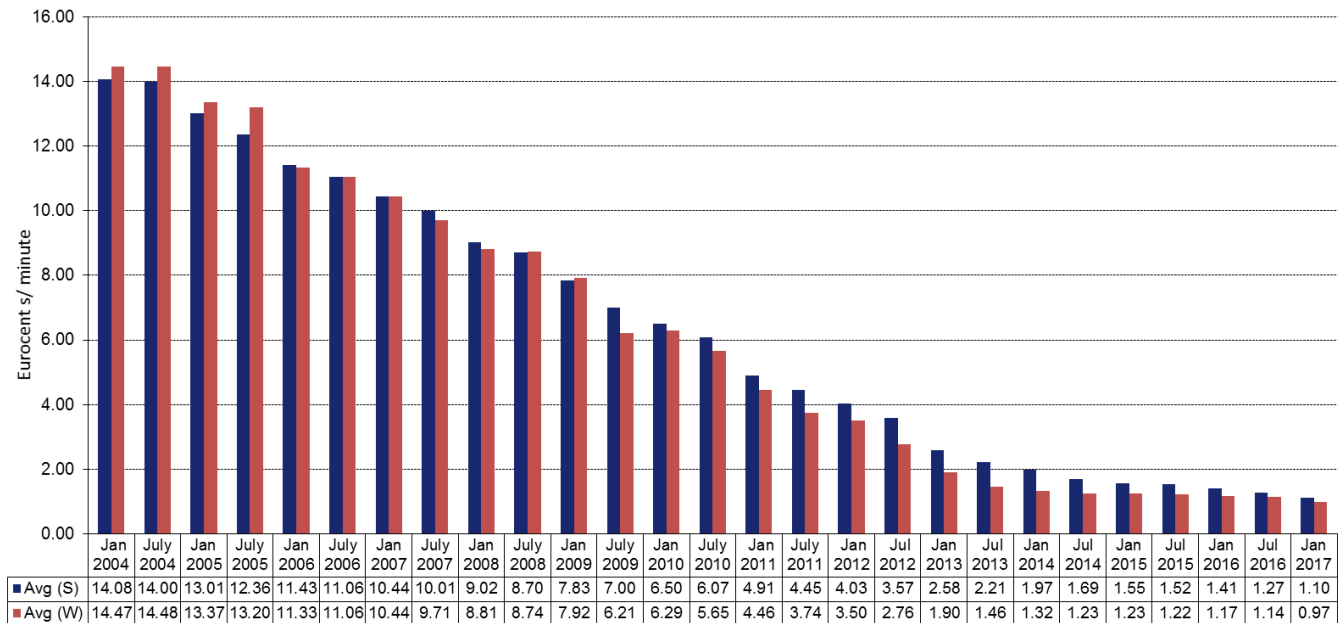
3.3. Average MTR per operator

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 13 Evolution of simple and weighted averages



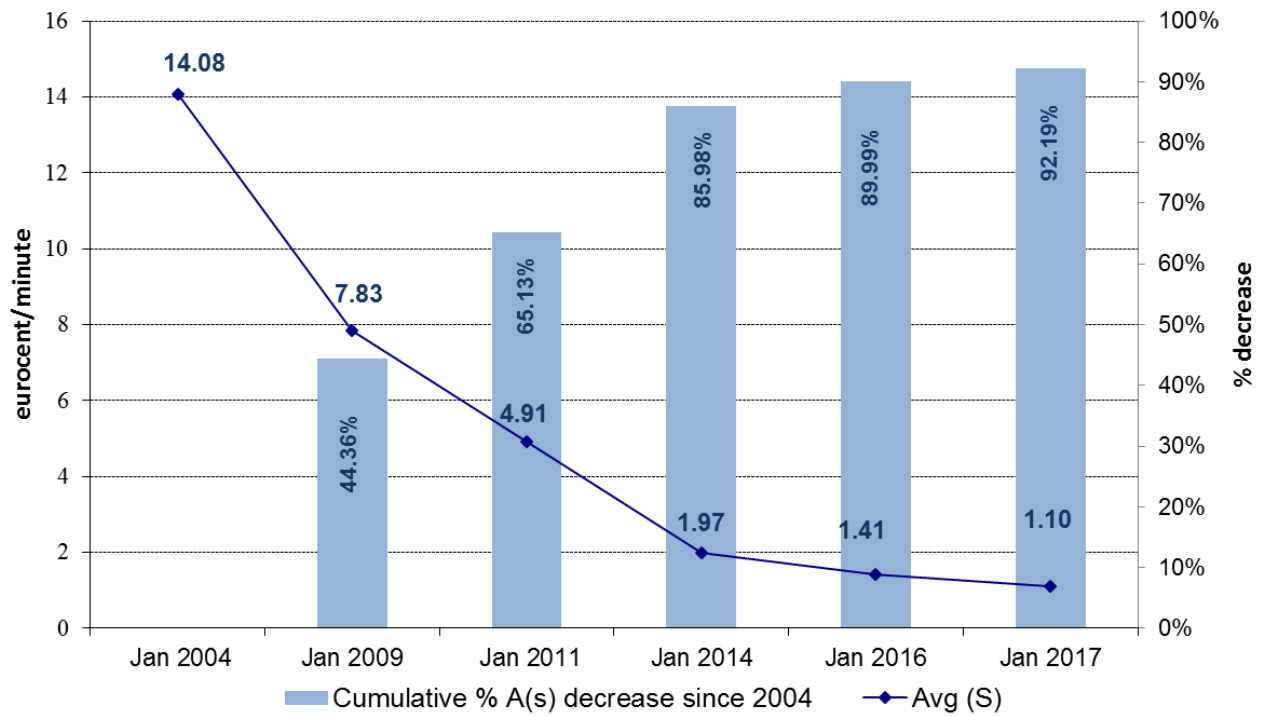
Source: NRAs, BEREC

Note to figure 13: 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 14 and 15 show the cumulative declines of the simple and the weighted average of European MTRs since 2004.

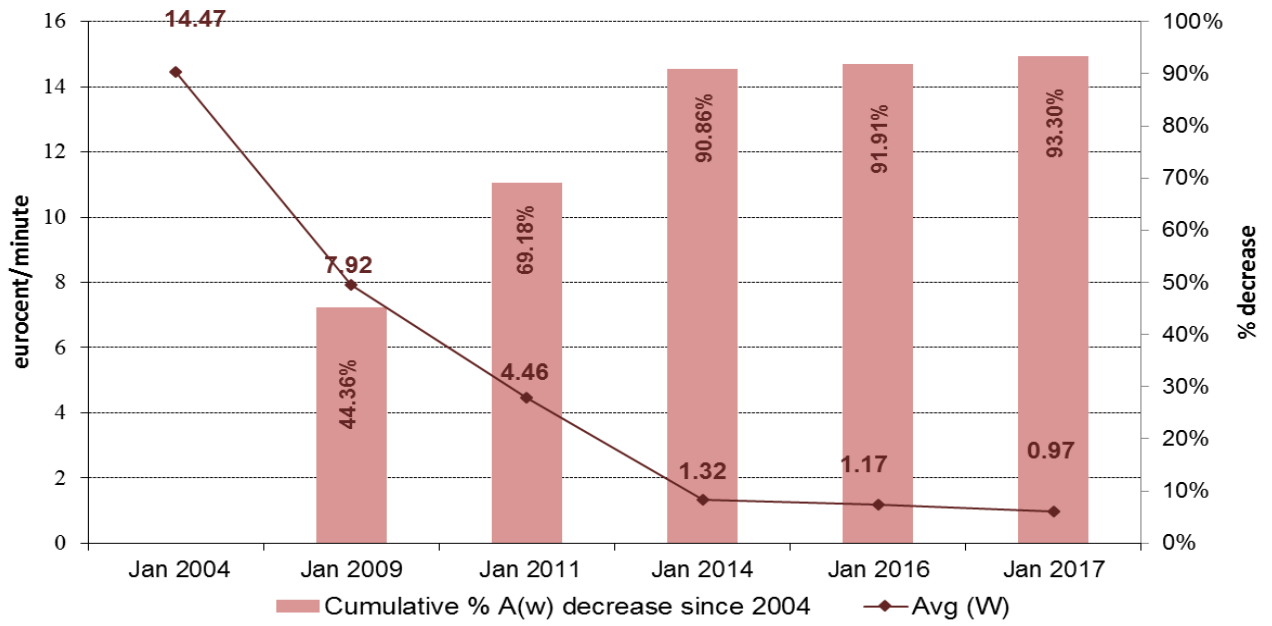
Considering the number of countries and operators included over the years, the simple average MTRs dropped by more than 92% since January 2004, from 14.08 eurocents to 1.11 euro cents in January 2017. When weighted, European MTRs average has declined even more, from 14.47 eurocents to 1.06 in the same period.

Figure 14 European MTRs simple average cumulative decline



Source: NRAs, BEREC

Figure 15 European MTRs weighted average cumulative decline

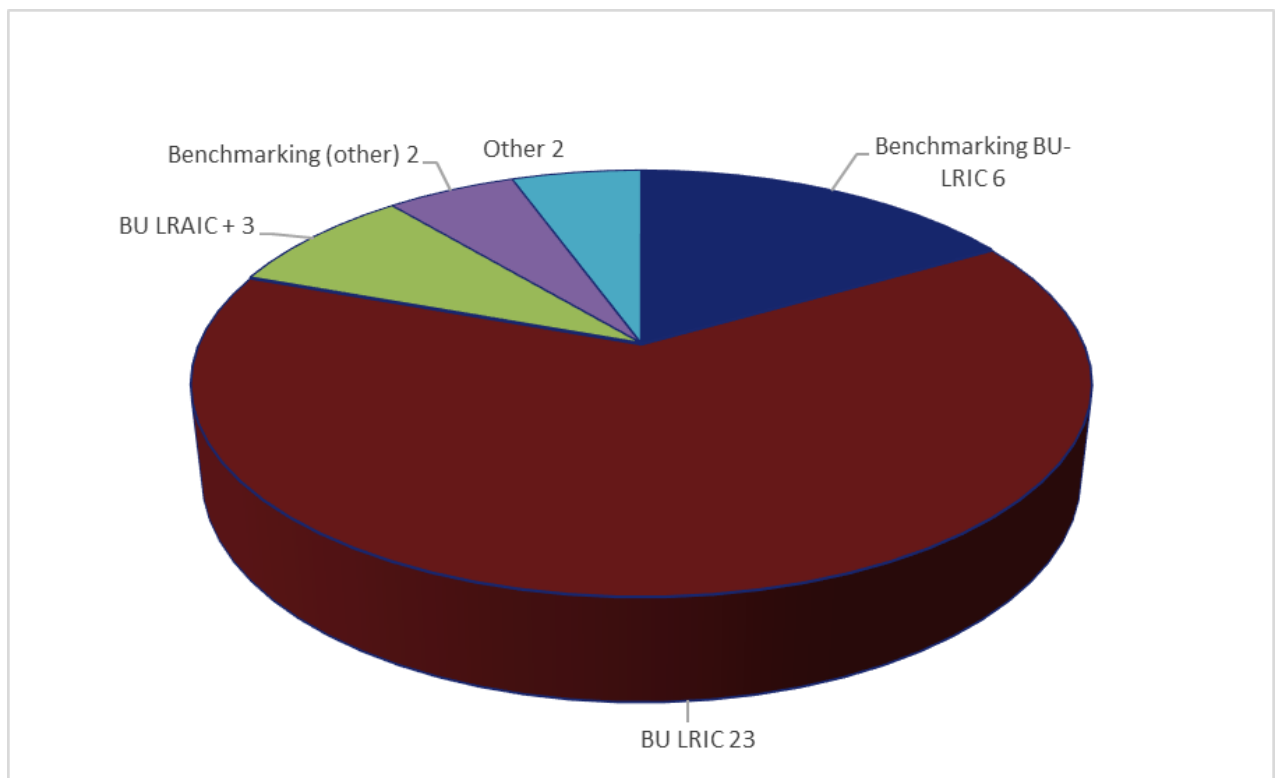


Source: NRAs, BEREC

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. In one country (Switzerland) MTRs are not regulated.

Figure 16 Cost accounting models used by NRAs



Source: NRAs, BEREC

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 2017. Thirty-seven (37) 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 considered¹⁰).

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.

¹⁰ 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.

- 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, but also in the case of services considered, some countries are including data-only SIM cards and/or M2M SIM cards).

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 MTRs):

- 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 2017)

Table 2 - Average SMS TR per country¹¹

Country	Average SMS TR per country (eurocents)
AL	0.73
AT	3.11
BE	4.96

¹¹ The increase of the simple average is partially due to the deregulation of SMS in Denmark seen as of 2016. As such, Denmark has not reported a termination rate for SMS in 2017 hereby increasing the simple average.

BG	confidential
CH	4.12
CY	0.60
CZ	confidential
DE	n. a.
DK	n. a.
EE	2.30
EL	3.00
ES	2.64
FI	confidential
FR	1.00
HR	n. a.
HU	4.53
IE	3.17
IS	3.16
IT	3.09
LI	5.84
LT	0.91
LU	n. a.
LV	2.13
ME	1.50
FYROM	0.49
MT	1.85
NL	n. a.
NO	3.87
PL	1.14
PT	0.83
RO	2.30
RS	1.62
SE	n. a.
SI	bill & keep
SK	2.50
TR	0.12
UK	1.88
Average (W)	2.01
Average (S)	2.38

Annex

Annex 1 Fixed termination rates as of 1 January 2017

Table 3

Country	Operator	Lowest Regulated Rate	WA in eurocents
AL	Albtelecom	Single-rate	0.9478
	Abcom	Single-rate	0.9478
	Albanian Satellite Communications	Single-rate	0.9478
	Rest of operators	Single-rate	0.9478
AT	A1 Telekom Austria	Single-rate	0.1110
	Operator 2	Single-rate	0.1110
	Operator 3	Single-rate	0.1110
	Operator 4	Single-rate	0.1110
	Operator 5	Single-rate	0.1110
	Operator 6	Single-rate	0.1110
	Rest of operators	Single-rate	0.1110
BE	Proximus	Single-rate	0.0920
	Rest of operators	Single-rate	0.0920
BG	Bulgarian Telecommunication Company (incumbent)	Single-rate	0.0767
	Telenor Bulgaria	Single-rate	0.0767
	Mobiltel	Single-rate	0.0767
	Blizoo Media and Broadband	Single-rate	0.0767
CH	Swisscom	LRR	0.5366
	Swisscom	2nd LRR	0.6471
CY	Cyta	LRR	0.1033
	Cyta	2nd LRR	0.1363
	Cyta	3rd LRR	0.2075
	Primetel	LRR	0.1033
	Primetel	2nd LRR	0.1363
	Primetel	3rd LRR	0.2075
	Cablenet	LRR	0.1363
	Cablenet	2nd LRR	0.2075
	MTN	LRR	0.1363
	Rest of operators	LRR	0.1363
CZ	Česká telekomunikační infrastruktura a.s.	Single-rate	0.1221
	UPC Česká republika, s.r.o.	Single-rate	0.1221
	Vodafone Czech Republic a.s.	Single-rate	0.1221
	T-Mobile Czech Republic a.s.	Single-rate	0.1221
	IPEX a.s.	Single-rate	0.1221
	České Radiokomunikace a.s.	Single-rate	0.1221
	Rest of operators	Single-rate	0.1221

DE	Telekom Deutschland GmbH	Single-rate	0.2400
DK	TDC	Single-rate	0.0551
	Telia	Single-rate	0.0551
	Telenor	Single-rate	0.0551
	DLG Tele	Single-rate	0.0551
	Rest of operators	Single-rate	0.0551
EE	Telia Eesti AS	Single-rate	0.0960
	STV	Single-rate	0.0970
	Starman	Single-rate	0.0970
	Elisa	Single-rate	0.0970
EL	OTE	Single-rate	0.0545
	FORTHNET	Single-rate	0.0545
	HOL/VODAFONE	Single-rate	0.0545
	WIND	Single-rate	0.0545
	Rest of operators	Single-rate	0.0545
ES	Telefónica de España	Single-rate	0.0817
	Vodafone - Ono	Single-rate	0.0817
	Orange	Single-rate	0.0817
	Rest of operators	Single-rate	0.0817
FI	DNA Oyj	Single-rate	2.8000
	Elisa Oyj	Single-rate	2.8000
	TeliaSonera Finland Oyj	Single-rate	2.8000
	Rest of operators (weighted average)	Average	2.9970
	Weighted average of all operators (weighted average)	Average	2.8512
FR	All operators	Single-rate	0.0770
HR	HT	Single-rate	0.0665
	OPTIMA	Single-rate	0.0677
	VIPnet	Single-rate	0.0674
	H1	Single-rate	0.0716
HU	Magyar Telekom	Single-rate	0.1293
	Invitel	Single-rate	0.1293
	UPC	Single-rate	0.1293
	Rest of operators	Single-rate	0.1293
IE	all operators with SMP	Single-rate	0.0720
IS	Siminn	Single-rate	0.1312
	Vodafone	Single-rate	0.1312
IT	Telecom Italia S.p.A.	Single-rate	0.0430
	Wind Telecomunicazioni S.p.A.	Single-rate	0.0430
	Fastweb S.p.A.	Single-rate	0.0430
	Vodafone Italia S.p.A. (including TeleTu S.p.A.)	Single-rate	0.0430
	Rest of operators	Single-rate	0.0430
LT	TEO LT, AB	Single-rate	0.1300
	CSC Telecom	Single-rate	0.1300
	AB Lietuvos gelezinkeliai	Single-rate	0.1300

LI	Telecom Liechtenstein AG	Single-rate	3.6118
LU	EPT	Single-rate	0.1310
	Rest of operators	Single-rate	0.1310
LV	Lattelecom	Single-rate	0.1037
	Latvijas Mobilais Telefons	Single-rate	0.1037
	Baltcom	Single-rate	0.1037
	Telecom Baltija	Single-rate	0.1037
	Rest of operators	Single-rate	0.1037
ME	Crnogorski Telekom	LRR	0.6500
	Crnogorski Telekom	2nd LRR	0.8000
	Mtel	Single-rate	0.9400
	Telenor	Single-rate	0.9400
	Telemach	Single-rate	0.9400
FYROM	Makedonski Telekom	Single-rate	0.5854
	VIP operator	Single-rate	0.5854
	Robi	Single-rate	0.5854
	Neotel	Single-rate	0.5854
MT	Go plc	Single-rate	0.0443
	Melita plc	Single-rate	0.0443
	Vodafone Malta Ltd	Single-rate	0.0443
	Ozone	Single-rate	0.0443
	Solutions and Infrastructure Ltd (SIS)	Single-rate	0.0443
	Vanilla Telecoms Ltd	Single-rate	0.0443
NL	KPN	Single-rate	0.3020
	Ziggo	Single-rate	0.3020
	Rest of operators	Single-rate	0.3020
NO	Telenor	Single-rate	0.0664
	NexGenTel	Single-rate	0.0664
	Get	Single-rate	0.0664
	Phonero	Single-rate	0.0664
	Phonect	Single-rate	0.0664
	Rest of operators	Single-rate	0.0664
PL	Orange Polska S.A.	LRR	0.4682
	Orange Polska S.A.	2nd LRR	0.5562
	Orange Polska S.A.	3rd LRR	0.8188
	Netia	Single-rate	0.6235
	Multimedia Polska S.A.	Single-rate	0.6235
	Multimedia Polska Poludnie S.A.	Single-rate	0.6235
PT	MEO (incumbent)	Single-rate	0.0644
	NOS Group	Single-rate	0.0644
	Vodafone	Single-rate	0.0644
	Apax Group	Single-rate	0.0644
	Rest of operators	Single-rate	0.0644
RO	Telekom RC S.A.	Single-rate	0.1400

	S.C. RCS&RDS S.A.	Single-rate	0.1400
	S.C. UPC Romania S.R.L.	Single-rate	0.1400
	S.C. VODAFONE ROMANIA S.A.	Single-rate	0.1400
RS	Telekom Srbija	LRR	0.4624
	Telekom Srbija	2nd LRR	0.5435
	Telekom Srbija	3rd LRR	0.6084
	Orion telekom	Single-rate	0.5030
	Telenor	Single-rate	0.5030
	Serbia Broadband	Single-rate	0.5030
	Rest of operators	Single-rate	0.5030
SE	TeliaSonera AB	LRR	0.0676
	TeliaSonera AB	2 nd LRR	0.1097
SI	Telekom Slovenije	Single-rate	0.0876
	Telemach	Single-rate	0.0876
	T-2	Single-rate	0.0876
	Si.mobil	Single-rate	0.0876
	Rest of operators	Single-rate	0.0876
SK	Slovak Telekom a.s.	Single-rate	0.1234
	Orange Slovensko a.s.	Single-rate	0.1234
	UPC BROADBAND SLOVAKIA s.r.o.	Single-rate	0.1234
	SWAN, a.s.	Single-rate	0.1234
TR	Türk Telekom	LRR	0.3922
	Türk Telekom	2 nd LRR	0.4825
	Türk Telekom	3 rd LRR	0.6320
	TTNet	Single-rate	0.9028
	Superonline	Single-rate	0.9028
	Turknet	Single-rate	0.9028
	Rest of operators	Single-rate	0.9028
UK	BT	Single-rate	0.0403
	TalkTalk	Single-rate	0.0403
	Sky	Single-rate	0.0403
	Virgin Media	Single-rate	0.0403
	Others	Single-rate	0.0403

Notes to table 3:

EL: Regarding peak- off peak, please note that since 1/1/2014 there is no distinction between peak and off peak FTRs.

FI: FTR average for the rest of operators (combined market share 26 %) is a weighted average as of 30.6.2016.

IE: Please note that ComReg Decision D12/12 set fixed termination rates at layer one (i.e. eircom's primary). ComReg Decision D12/12 imposed symmetrical blended rate of 0.085 eurocents per minute for all SMP fixed operators from 1 July 2014. This blended FTR was reduced to 0.072 eurocents per minute from 1 July 2015. Please refer to Annex1 in ComReg Decision D12/12 at http://www.comreg.ie/_fileupload/publications/ComReg12125.pdf

FTRs will remain at the above rate until after a Market Analysis and corresponding Pricing Decision have been made. ComReg is planning consultations in Q2 2017 with likely Decision Notices in Q4 2017.

In Ireland transit markets are not regulated. FTRs only apply at Level 1.

Operators can choose between a set per call and charge per minute rate or just a charge per minute rate. In Ireland operators have chosen to use the per minute rate.

IS: FTR in ISK have not changed. The increase from 11 eurocents to 13 is due to fluctuating exchange rate ISK/EUR.

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

FYROM: The price in national currency is 0.36 denars.

PT: Following ANACOM's Decision on December 21, 2016, there is only a single rate for the FTR, for the local and single transit interconnection levels, and it was set at the level of 0.0644 eurocents per minute starting on January 4, 2017.

RS: Termination rates are as of 01/01/2017.

TR: In Turkey, there is no differentiation in fixed termination rates such as peak and off-peak.

UK: Ofcom is currently in the process of national consultation to set a new charge control. BT is not currently subject to a charge control but has made voluntary commitments to maintain the cap set by the previous charge control. This was an average price cap for the year that had to be no more than 0.035ppm. BT is free to set prices within this cap. BT has set different rates for day, evening and weekend traffic. 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 FTR regulatory model implemented

Table 4

Country	COST MODEL	ACCOUNTING
AL	Benchmark	
AT	Pure BU LRIC	
BE	Pure BU LRIC	
BG	Pure BU LRIC	
CH	BU LRAIC+	
CY	Benchmark (Pure BU LRIC)	
CZ	Pure BU LRIC	
DE	BU LRAIC+	
DK	Pure BU LRIC	
EE	Benchmark (Pure BU LRIC)	
EL	Pure BU LRIC	
ES	Pure BU LRIC	
FI	FDC/FAC (top down)	
FR	Pure BU LRIC	
HR	Pure BU LRIC	
HU	Pure BU LRIC	
IE	Pure BU LRIC	
IS	Benchmark (Pure BU LRIC)	
IT	Pure BU LRIC	
LI	FDC/FAC	
LT	Pure BU LRIC	
LU	Pure BU LRIC	
LV	Benchmark (Pure BU LRIC)	
ME	TD LRIC	
FYROM	TD LRIC	
MT	Pure BU LRIC	
NL	BU LRAIC +	
NO	Pure BU LRIC	
PL	TD-FDC	
PT	Pure BU LRIC	
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:

AL: Benchmarking based on average FTR of BEREC countries. Market analysis and SMP decisions for fixed call termination for the incumbent and 80 other fixed network operators on 8.10.2015 imposed the regulation of FTRs through benchmarking methodology and a glide path (1.01.2016-1.01.2018):

- symmetrical FTRs starting from 1.01.2016 and only one single layer FTR to be applied from the incumbent and the other FNOs;
- the FTR (one single rate) to be applied from 01/01/2018 was calculated by AKEP as the simple average of FTRs in BEREC countries with one layer interconnection as of 01.01.2014.

BG: With Decision 550 from 20 October 2016 CRC approved cost-oriented fixed terminating rates based on Pure Bu-LRIC model as follows:

- from 01.11.2016 – 0.0015 BGN/minute;
- from 01.01.2017 – 0.0015 BGN/minute;
- from 01.01.2018 – 0.0015 BGN/minute;
- from 01.01.2019 - 0.0014 BGN/minute;
- from 01.01.2020 - 0.0014 BGN/minute.

No FTRs peak/off-peak or hierarchy levels differentiation.

CH: Source of the Swisscom-Tariffs:

https://www.swisscom.ch/dam/swisscom/de/ws/documents/D_IC-Dokumente/de_handbuch-preiseicv1-17.pdf, p.11 and https://www.swisscom.ch/dam/swisscom/de/ws/documents/D_IC-Dokumente/voip-ic/de_voip_ic_handbuch-preise2-1.pdf, p. 7.

CY: OCECPR is in the process of development of a BU-LRIC, which is expected to be completed during the second quarter of 2017. For the transit period OCECPR is using as benchmark the simple average of tariffs of the NRAs that have developed a BU-LRIC model. The issuing of the relevant decisions is expected in the 2nd quarter of 2017.

CZ: 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.

DK: We do not have traffic information per layer.

EL: The date that the BU PURE LRIC was firstly applied was on 28.05.2014.

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

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.

LI: Benchmarking as efficiency check for TD-FDC calculated FTR. FTR regulation is not finalized.

Current FTR cap was decided in 2007. Market analysis and remedies M3 decided in 2010. New FTR decision expected in 2017, 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: Rates of termination on alternative fixed networks should not be higher than rates applied by TEO LT, AB at particular network level. No differentiation Peak/Off-peak.

LU: Règlement 16/209/ILR du 28 novembre 2016 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 1/2014).

No specific layer fixed by regulation.

ME: Current FTR are regulated according to the TD LRIC costing methodology. Incumbent operator had developed TD LRIC cost model, and NRA approved results every year.

FYROM: The current price is calculated according to Top Down LRIC from the Incumbent and approved by the Agency.

PL: Currently FTRs are regulated according to the TD-FDC costing methodology – incurred costs.

PT: The latest fixed termination market analysis was approved in December 2016 together with a pure BU LRIC costing model developed for ANACOM in accordance with the Commission Recommendation on Termination rates. The new maximum value for fixed termination rate (FTR) is in place since January

4th 2017. It was set based on a pure BU LRIC cost model, and dropped from 0.1114 to 0.0644 eurocents per minute, on the basis of per-second billing, for the local and single transit interconnection levels, while it was established that the price of double transit interconnection is subject to negotiation between operators.

RS: TD-FAC-CCA.

SK: Ru has not used any glide path.

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
AL	Yes	FTRs are symmetrical for all FNOs since 01/01/2016 as decided in market analysis and SMP decisions on October 2015. The same FTR applies to all FNOs regardless of network topology and levels of interconnection.
AT	Yes	Full symmetry.
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 the average FTR (i.e. pricing flexibility is left for operators).
CY	Yes	Yes, from 1.1.2016 the same regulated terminations rates apply for all providers.
CZ	Yes	
DE	Yes	Tariffs are symmetrical because of contractual agreements between incumbent Telekom Deutschland and alternative fixed network operators to charge reciprocal tariffs.
DK	Yes	Same FTR apply to all price regulated operators, cf. market decisions as of December 18, 2013.
EE	Yes	Same FTR applies for nine operators with SMP.
EL	Yes	
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 not anymore 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 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 PoI, then a transit for terminating at the other PoIs should be paid. For IP interconnection the number of PoI 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 PoI for FTR. It is subject to commercial negotiation, as it was in the past.
FI	Yes	
FR	Yes	
HR	Yes	Symmetry in fixed network is prescribed for all operators as of the 1st January 2013.
HU	Yes	

IE	Yes	Please note that ComReg Decision D12/12 set fixed termination rates at layer one (i.e. eircom's primary). ComReg Decision D12/12 imposed symmetrical blended rate of 0.085 eurocents per minute for all SMP fixed operators from 1 July 2014. This blended FTR was reduced 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	Subscriber and usage data for second half 2016 not yet available - using 30.6.2016 - NOTE: FTR in ISK have not changed. The increase from 11 to 13 eurocents is due to fluctuating exchange rate ISK/EUR.
IT	Yes	
LI	Not applicable	There is only one FNO in Liechtenstein: Telecom Liechtenstein AG. 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 symmetrical, i.e. FTRs are the same despite number of customers, difference in network topologies, the level of interconnection, and so on.
LU	Partially	A maximal price cap is defined by the regulation, but operators may implement the solution in their own way.
LV	Yes	
ME	No	
FYROM	Yes	Full symmetry
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	
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 symmetrical, and following ANACOM's Decision on December 21, 2016, they were set at the level of 0.0644 eurocents per minute starting on January 4, 2017. All SMP operators apply a per second billing system that does not include any setup fee.
RO	Yes	Symmetric FTRs irrespective of interconnection level.
RS	Partially	Operators have different topology and different number of the levels of interconnection. Telekom Srbija have 3 levels of interconnection. Other operators have 1 level of interconnection.
SE	Yes	Symmetric FTR apply to all regulated operators.
SI	Yes	It's based on national coverage of layer.
SK	Yes	The FTR is non-discriminatory for all operators without any exception.
TR	No	
UK	Yes	Termination is regulated only at 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 Number of active fixed telephony lines and Market shares

Table 6

Country	Operator	Number of lines	Total number of lines	Market shares
AL	Albtelecom	176,733	246,121	71.81%
	Abcom	13,946		5.67%
	Albanian Satellite Communications	37,765		15.34%
	Rest of operators	17,677		7.18%
AT	A1 Telekom Austria	2,275,539	3,558,320	63.95%
	Operator 2	519,636		14.60%
	Operator 3	204,605		5.75%
	Operator 4	201,177		5.65%
	Operator 5	55,124		1.55%
	Operator 6	52,815		1.48%
	Rest of operators	249,424		7.01%
BE	Proximus	2,700,488	4,532,475	59.58%
	Rest of operators	1,831,987		40.42%
BG	Bulgarian Telecommunication Company (incumbent)	Confidential	Confidential	61.92%
	Telenor Bulgaria	Confidential		14.19%
	Mobiltel	Confidential		14.79%
	Blizoo Media and Broadband	Confidential		7.74%
	Rest of operators	19,531		1.36%
CH	Swisscom	NA	NA	NA
	Swisscom	NA		NA
CY	Cyta	242,490	321,219	75.49%
	Primetel	40,847		12.72%
	Cablenet	24,314		7.57%
	MTN	12,577		3.92%
	Rest of operators	991		0.31%
CZ	Česká telekomunikační infrastruktura a.s.	Confidential	Confidential	43.67%
	UPC Česká republika, s.r.o.	Confidential		8.53%
	Vodafone Czech Republic a.s.	Confidential		8.23%
	T-Mobile Czech Republic a.s.	Confidential		7.54%
	IPEX a.s.	Confidential		3.59%

	České Radiokomunikace a.s.	Confidential		3.29%
	Rest of operators	Confidential		25.16%
DE	Telekom Deutschland GmbH	20,170,000	36,940,000	54.60%
	Rest of operators	16,770,000		45.40%
DK	TDC	558,807	735,613	75.96%
	Telia	49,920		6.79%
	Telenor	45,032		6.12%
	DLG Tele	48,190		6.55%
	Rest of operators	33,664		4.58%
EE	Telia Eesti AS	304,719	359,992	84.65%
	STV	13,353		3.71%
	Starman	12,693		3.53%
	Elisa	29,227		8.12%
EL	OTE	2,681,581	4,735,922	56.62%
	FORTHNET	Confidential		Confidential
	HOL/VODAFONE	Confidential		Confidential
	WIND	Confidential		Confidential
	Other operators	Confidential		Confidential
ES	Telefónica de España	9,689,016	19,082,033	50.78%
	Vodafone - Ono	4,460,925		23.38%
	Orange	4,018,703		21.06%
	Rest of operators	913,389		4.79%
FI	DNA Oyj	NA	NA	15.00%
	Elisa Oyj	NA		37.00%
	TeliaSonera Finland Oyj	NA		22.00%
	Rest of operators	NA		26.00%
FR	All operators	NA	NA	NA
HR	HT	Confidential	1,405,377	Confidential
	OPTIMA	Confidential		Confidential
	VIPnet	Confidential		Confidential
	H1	Confidential		Confidential
	Rest of operators	Confidential		Confidential
HU	Magyar Telekom	1,626,453	3,120,000	52.13%
	Invitel	400,598		12.84%
	UPC	547,075		17.53%
	Rest of operators	545,874		17.50%
IE	all operators with SMP	1,482,179	1,482,179	100.00%

IS	Siminn	84,169	122,036	69.00%
	Vodafone	37,867		31.00%
IT	Telecom Italia S.p.A.	11,368,090	20,215,211	56.24%
	Wind Telecomunicazioni S.p.A.	2,707,536		13.39%
	Fastweb S.p.A.	2,330,020		11.53%
	Vodafone Italia S.p.A. (including TeleTu S.p.A.)	2,257,166		11.17%
	Rest of operators	1,552,399		7.68%
LI	Telecom Liechtenstein AG	16,610	16,610	100.00%
LT	TEO LT, AB	449,729	494,855	90.88%
	CSC Telecom	8,554		1.73%
	AB Lietuvos gelezinkeliai	5,399		1.09%
	Rest of operators	31,173		6.30%
LU	EPT	204,500	276,500	73.96%
	Rest of operators	72,000		26.04%
LV	Lattelecom	255,058	354,905	71.87%
	Latvijas Mobilais Telefons	26,750		7.54%
	Baltcom	12,275		3.46%
	Telecom Baltija	14,390		4.05%
	Rest of operators	46,432		13.08%
ME	Crnogorski Telekom	149,198	161,763	92.23%
	Mtel	10,868		6.72%
	Telenor	764		0.47%
	Telemach	933		0.58%
FYROM	Makedonski Telekom	219,564	367,875	59.68%
	VIP operator	105,037		28.55%
	Robi	25,769		7.00%
	Neotel	12,850		3.49%
	Rest of operators	4,655		1.27%
MT	Go plc	152,348	233,177	65.34%
	Melita plc	78,815		33.80%
	Vodafone Malta Ltd	1,067		0.46%
	Ozone	716		0.31%
	Solutions and Infrastructure Ltd (SIS)	167		0.07%
	Vanilla Telecoms Ltd	64		0.03%

NL	KPN	6,727,080	12,754,405	52.74%
	Ziggo	3,481,565		27.30%
	Rest of operators	2,545,760		19.96%
NO	Telenor	543,859	863,855	62.96%
	NexGenTel	72,036		8.34%
	Get	54,725		6.33%
	Phonero	39,910		4.62%
	Phonect	35,487		4.11%
	Rest of operators	117,838		13.64%
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 (incumbent)	Confidential	4,787,677	46.46%
	NOS Group	Confidential		34.74%
	Vodafone	Confidential		14.49%
	Apax Group	Confidential		3.96%
	Rest of operators	Confidential		0.35%
RO	Telekom RC S.A.	Confidential	4,107,877	Confidential
	S.C. RCS&RDS S.A.	Confidential		Confidential
	S.C. UPC Romania S.R.L.	Confidential		Confidential
	S.C. VODAFONE ROMANIA S.A.	Confidential		Confidential
	Rest of operators	Confidential		Confidential
RS	Telekom Srbija	Confidential	2,712,083	88.6%
	Orion telekom	Confidential		0.3%
	Telenor	Confidential		1.2%
	Serbia Broadband	Confidential		8.6%
	Rest of operators	Confidential		1.3%
SE	TeliaSonera AB	2,380,531	3,536,515	67.31%
	Com Hem AB	322,214		9.11%
	Tele2 Sverige AB	63,675		1.80%
	Telenor Sverige AB	198,611		5.62%
	Telavox AB	121,730		3.44%
	Rest of operators	449,754		12.72%
SI	Telekom Slovenije	Confidential	Confidential	54.00%
	Telemach	Confidential		21.56%
	T-2	Confidential		12.15%

	Si.mobil	Confidential		7.07%
	Rest of operators	Confidential		5.22%
SK	Slovak Telekom a.s.	Confidential	1,219,687	Confidential
	Orange Slovensko a.s.	Confidential		Confidential
	UPC BROADBAND SLOVAKIA s.r.o.	Confidential		Confidential
	SWAN, a.s.	Confidential		Confidential
	Rest of operators	Confidential		Confidential
TR	Türk Telekom	7,981,461	11,077,559	72.05%
	TTNet	1,725,810		15.58%
	Superonline	398,302		3.60%
	Turknet	195,283		1.76%
	Rest of operators	776,703		7.01%
UK	BT	Confidential	33,585,190	Confidential
	TalkTalk	Confidential		Confidential
	Sky	Confidential		Confidential
	Virgin Media	Confidential		Confidential
	Others	Confidential		Confidential

Notes to table 6

BE: Please note that the number of lines (115) & Distribution of lines (C45-F45) provided are those of 1st January 2016, as BIPT only asks this once a year and are not available yet.

CZ: Data regarding number of lines are as of the 30 June 2016, data for the whole year 2016 are not yet available.

DE: Number of lines = 2015 figures. Source: BNetzA Annual Report 2015.

EL: The 'Number of Lines' data refer to the number of active telephone access lines as at 30.6.2016. The wholesale line rental lines are included in the incumbent's (OTE) lines. Data per operator (except from the incumbent) is considered confidential.

HR: Number of channels were not included. Data for Q3 2016.

IT: The numbers of subscribers are estimates.

LT, MT: Data as of Q3 2016.

NO: Numbers of subscribers are provided as of 01.07.2016. The total number of subscribers according to 1st of January 2017 will not be available before Q2 2017.

PT: Please note that information regarding the number of lines by operator is confidential.

RO: The number of lines per operator is confidential. Data as of 01.01.2017 is provisional.

RS: Number of lines are as of 31.12.2016. Information on individual's number of lines by operator is confidential.

SK: Operators have requested the Number of lines to be treated as confidential information.

TR: The number of lines specified above table for alternative network operators includes the number of wholesale line rental and VoIP subscribers.

Annex 5 Average MTR per operator as of 1 January 2017

Table 7

Country	Operator	Average effective prices (euro cents)	Subscribers	Country total subscribers	Market Share %
AL	Telekom Albania	1.0874	1,133,323	3,490,686	32.47%
	Vodafone Albania	1.0874	1,730,990		49.59%
	Albtelecom	1.0874	445,391		12.76%
	Plus Communication	4.7906	180,982		5.18%
AT	A1Telekom Austria	0.8049	5,400,000	13,505,000	39.99%
	T-Mobile Austria	0.8049	3,700,000		27.40%
	Hutchison Drei Austria	0.8049	3,800,000		28.14%
BE	Proximus (incl light MVNO)	1.1800	confidential	12,309,278	confidential
	Orange Belgium (incl light MVNO)	1.1800	confidential		confidential
	Telenet Group (incl light MVNO)	1.1800	confidential		confidential
BG	Mobitel	0.7158	confidential	confidential	39.68%
	Telenor Bulgaria	0.7158	confidential		33.44%
	BTC	0.7158	confidential		26.86%
CH	Swisscom	2.8709	6,571,315	10,683,786	61.51%
	Sunrise	3.9822	2,395,012		22.42%
	Salt	3.9822	1,717,459		16.08%
CY	Cyta	0.9900	676,273	1,086,760	62.23%
	Primetel	1.1880	47,687		4.39%
	MTN	0.9900	353,375		32.52%
CZ	T-Mobile Czech Republic a.s.	0.9175	confidential	confidential	38.62%
	O2 Czech Republic a.s.	0.9175	confidential		30.49%
	Vodafone Czech Republic a.s.	0.9175	confidential		23.69%
DE	Telekom Deutschland	1.1000	41,849,000	128,870,000	32.22%
	Vodafone	1.1000	43,700,000		33.65%
	Telefónica Germany GmbH & Co. OHG	1.1000	44,321,000		34.13%
DK	TDC	0.6358	3,093,807	8,363,039	36.99%
	Telia	0.6358	1,894,506		22.65%
	Telenor	0.6358	1,504,803		17.99%
	3 (Hi3G)	0.6358	1,189,866		14.23%
EE	Telia Eesti AS	0.9200	758,224	1,897,921	39.95%
	Elisa Eesti AS	0.9200	630,490		33.22%
	Tele2 Eesti AS	0.9200	509,207		26.83%
EL	Cosmote	1.0720	Confidential	12,620,915	Confidential
	Vodafone	1.0720	Confidential		Confidential
	Wind	1.0720	Confidential		Confidential
ES	TME	1.0900	15,284,526		29.87%

	Vodafone	1.0900	14,018,208	51,176,157	27.39%
	Orange	1.0900	13,066,113		25.53%
	Xfera	1.0900	3,239,748		6.33%
FI	DNA	1.2500	2,491,000	9,502,000	26.22%
	Elisa	1.2500	3,686,000		38.79%
	TeliaSonera	1.2500	3,259,000		34.30%
FR	Orange	0.7400	n,a,	72,966,000	n.a.
	SFR	0.7400	n,a,		n.a.
	Bouygues Telecom	0.7400	n,a,		n.a.
	Free Mobile	0.7400	n,a,		n.a.
HR	HT	0.8375	<i>confidential</i>	4,672,091	<i>confidential</i>
	VIPnet	0.8375	<i>confidential</i>		<i>confidential</i>
	Tele2	0.8375	<i>confidential</i>		<i>confidential</i>
HU	T-Mobile	0.5528	<i>confidential</i>	<i>confidential</i>	<i>confidential</i>
	Telenor	0.5528	<i>confidential</i>		<i>confidential</i>
	Vodafone	0.5528	<i>confidential</i>		<i>confidential</i>
IE	Vodafone	0.8200	1,807,369	4,916,241	36.76%
	Three Ireland Group	0.8200	1,601,094		32.57%
	eircom Group mobile	0.8200	992,089		20.18%
	Tescomobile	0.8200	358,527		7.29%
IS	Siminn	1.0084	147,126	432,999	33.98%
	Vodafone	1.0084	119,688		27.64%
	Nova	1.0084	149,850		34.61%
	365/Tal	1.0084	16,335		3.77%
IT	Telecom Italia S.p.A.	0.9800	29,549,390	97,394,578	30.34%
	Vodafone Italia S.p.A.	0.9800	28,480,101		29.24%
	Wind Telecomunicazioni S.p.A.	0.9800	21,774,445		22.36%
	H3G S.p.A.	0.9800	10,434,812		10.71%
	Poste Mobile	0.9800	3,676,200		3.77%
LI	Salt (Liechtenstein) AG	3.6118	<i>confidential</i>	10,197	<i>confidential</i>
	Swisscom (Schweiz) AG	3.6118	<i>confidential</i>		<i>confidential</i>
	Telecom Liechtenstein AG	3.6118	<i>confidential</i>		<i>confidential</i>
LT	Tele2	0.9400	1,823,407	4,238,731	43.02%
	Omnitel	0.9400	1,275,316		30.09%
	Bite Lietuva	0.9400	1,055,240		24.90%
LU	Post Télécom	0.9700	429,000	916,000	46.83%
	Tango	0.9700	280,000		30.57%
	Orange	0.9700	153,700		15.06%
LV	Latvijas Mobilais Telefons	1.0500	931,921	2,695,261	34.58%
	Tele2	1.0500	968,312		35.93%
	Bite Latvija	1.0500	534,564		19.83%

	Zetcom	1.0500	178,032		6.61%
ME	Telenor	1.0600	377,701	1,040,747	36.29%
	Crnogorski Telekom	1.0600	361,149		34.70%
	Mtel	1.0600	301,897		29.01%
FYROM	Makedonski Telekom	1.0245	1,064,234	2,124,225	50.10%
	VIP Macedonia	1.0245	1,052,127		49.53%
MT	Go plc	0.4045	225,898	586,140	38.54%
	Melita plc	0.4045	97,788		16.68%
	Vodafone	0.4045	252,335		43.05%
	Redtouch fone	0.4045	10,107		1.72%
NL	KPN	1.8610	7,089,360	21,939,635	32.31%
	Vodafone	1.8610	5,189,015		23.65%
	T-Mobile	1.8610	3,610,693		16.46%
	Tele2	1.8610	990,931		4.52%
NO	Telenor	0.7193	2,900,528	5,718,740	50.72%
	Telia	0.7193	2,090,457		36.55%
	Phonero	0.7193	217,200		3.80%
	Lyca	0.7193	109,458		1.91%
PL	Orange Polska S.A.	0.9798	<i>confidential</i>	54,537,230	<i>confidential</i>
	Polkomtel sp. z o.o.	0.9798	<i>confidential</i>		<i>confidential</i>
	P4 sp. z o.o.	0.9798	<i>confidential</i>		<i>confidential</i>
	T-Mobile Polska S.A.	0.9798	<i>confidential</i>		<i>confidential</i>
PT	MEO	0.8100	<i>confidential</i>	17,079,569	<i>confidential</i>
	VODAFONE	0.8100	<i>confidential</i>		<i>confidential</i>
	NOS	0.8100	<i>confidential</i>		<i>confidential</i>
RO	Vodafone Romania S.A.	0.9600	<i>confidential</i>	22,898,768	<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	Telekom Srbija - MTS	1.6793	<i>confidential</i>	9,094,447	46.80%
	Telenor	1.6793	<i>confidential</i>		31.20%
	Vip mobile	1.6793	<i>confidential</i>		22.00%
SE	Telia Company	0.7061	5,204,905	14,526,477	35.83%
	Tele2	0.7061	4,182,717		28.79%
	Telenor	0.7061	2,555,167		17.59%
	Hi3G	0.7061	1,998,195		13.76%
SI	Telekom Slovenije	1.1400	<i>confidential</i>	confidential	49.26%
	Si.mobil	1.1400	<i>confidential</i>		29.94%
	Telemach Mobil	1.1400	<i>confidential</i>		16.74%
	T-2	1.1400	<i>confidential</i>		4.06%
SK	Orange Slovensko, a.s.	1.2260	<i>confidential</i>	6,211,154	<i>confidential</i>
	Slovak Telekom, a.s.	1.2260	<i>confidential</i>		<i>confidential</i>
	O2 Slovakia, s.r.o.	1.2260	<i>confidential</i>		<i>confidential</i>
	Swan Mobile a.s.	1.2260	<i>confidential</i>		<i>confidential</i>

TR	Turkcell	0.7053	33,044,167	75,061,699	44.02%
	Vodafone	0.7279	23,455,310		31.25%
	Avea	0.8351	18,562,222		24.73%
UK	EE	0.5788	<i>confidential</i>	75,047,917	<i>confidential</i>
	Telefonica	0.5788	<i>confidential</i>		<i>confidential</i>
	Vodafone	0.5788	<i>confidential</i>		<i>confidential</i>
	H3G	0.5788	<i>confidential</i>		<i>confidential</i>

Notes to Table 7

AL: The reported MTR for Plus Communication applicable from 01.01.2017 is based on the clarification issued by the Administrative Court on 18.01.2017 regarding its decision on 31.10.2016, which revoked AKEP decision to set the MTR of Plus Communication symmetrical to the MTR of the other 3 MNOs starting from 1.04.2016. These decisions of the Administrative Court are currently under appeal to the Administrative Court of Appeal.

Number of mobile subscribers as of 31.12.2016, excluding M2M. The figure includes all post-paid subscribers with a valid contract and prepaid subscribers. Number of prepaid subscribers includes only active users i.e. number of prepaid 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.

AT: Subscribers as of Q2 2016

BE: Subscriber data as of 01.10.2016 (M2M not included)

BG: Number of active subscribers (prepaid and post-paid) of mobile telephony as of 31.12.2016. (excl. data-only SIM cards and M2M).

Number of post-paid active telephony subscribers means number of subscribers with a valid contract. Number of prepaid active telephony subscribers means numbers of subscribers that have made or received a call or sent an SMS at least once in the last 3 months.

CZ: Regulated MTR is defined as a single price per minute. The total number of SIM cards as of 30th June 2016 is available as the latest information.

DE: Current MTR are valid from 01.12.2016 until 30.11.2019.

The number of subscribers are as of 4th quarter 2016.

DK: Subscribers is derived as of June, 2016. The MVNO Mundio Mobile is also regulated, but no information regarding number of subscribers is available. Mundio Mobile faces the same MTR as all the other operators.

EL: Active subscribers as of 30.09.2016. M2M and data-only SIM cards are not included.

PL: Subscribers as of 31.12.2015.

IE: Subscriber numbers based on Q3 2016 data from ComReg's Key Quarterly Data Report, excluding M2M and data-only SIM cards

IS: Subscriber data for 1.1.2017 not yet available - use 30.06.2016 - Benchmark against BU-LRIC made in August 2016 for validity in 2017. Notified 1 October to ESA and ratified 1 November –

HU: Subscriber numbers as 1st of January 2016

HR, IT, LT, MT, NL: Subscribers as of Q3 2016.

LU: Data as of 30/06/2016

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: Data as of Q3 2015.

NO: Numbers of subscribers are provided as 01.07.2016. The total number of subscribers according to 1st of January 2017 will not be available before Q2 2017.

RO: The number of active SIM cards reflects the number of mobile telephony active SIM cards, excluding data-only SIM cards and M2M SIM cards.

Data as of 01.01.2017 is provisional.

RS: Subscriber numbers as 31st of December of 2016.

SE: Subscriber data as of 30.06.2016.

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Annex 6 Regulatory model implemented to calculate MTRs

Table 8

Jan-17	COST ACCOUNTING MODEL							
	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 01/01/2017 until 30/06/2017	Period 2 - From 01/07/2017 until 31/12/2017	Period 3 - From 01/01/2018 until 30/06/2018	Period 4 - From 01/07/2018 until 31/12/2018	Period 5 - From 01/01/2019 until 31/07/2019
AL	Benchmark BU-LRIC	adopted	01-12-11	1.0874				
AT	Pure BU-LRIC	adopted		0.8049	0.8049			
BE	Pure BU-LRIC	adopted	01-01-13	1.1800	0.7400	0.7400	0.7400	0.7400
BG	Pure BU-LRIC	adopted	01-12-16	0.7158	0.7158	0.7158	0.7158	0.7158
CH		not regulated						
CY	Benchmark BU-LRIC	adopted		0.9900	0.9900			
CZ	Pure BU-LRIC	adopted		0.9175				
DE	Pure BU-LRIC	notified	01-12-16	1.1000	1.1000	1.0700	1.0700	0.9500
DK	Pure BU-LRIC	adopted		0.6358	0.6358			
EE	Benchmark BU-LRIC	adopted	26-05-16	0.9200	0.8900			

EL	Pure BU-LRIC	adopted	01-01-13	1.0720	0.9820	0.9580	0.9580	0.9460
ES	Pure BU-LRIC	adopted	01-01-12	1.0900	1.0900	1.0900	1.0900	1.0900
FI	other (FDC/FAC)	adopted	01-12-15	1.2500	1.2500	1.2500	1.2500	
FR	Pure BU-LRIC	adopted	01-01-13	0.7400	0.7400			
HR	Pure BU-LRIC	adopted		0.8375	0.6248			
HU	Pure BU-LRIC	adopted	01-04-15	0.5528	0.5528	0.5528	not decided	not decided
IE	Pure BU-LRIC	adopted	01-09-16	0.8200	0.8200	0.7900	0.7900	0.7900
IS	Benchmark BU-LRIC	notified		1.0084	1.0084			
IT	Pure BU-LRIC	adopted	01-07-13	0.9800	0.9800			
LI	Benchmarking	adopted		3.6118				
LT	Benchmark BU-LRIC	adopted	01-04-16	0.9400				
LU	Pure BU-LRIC	adopted	01-04-15	0.9700				
LV	Benchmark BU-LRIC	adopted	01-07-14	1.0500				
ME	TD LRIC	adopted		1.0600				
FYROM	BU LRAIC+							
MT	Pure BU-LRIC	adopted	01-04-14	0.4045	0.4045			
NL	BU LRAIC+	adopted		1.8610				

NO	Pure BU-LRIC	adopted	01-07-15	0.7193	0.7193	0.7193		
PL	Pure BU-LRIC	adopted	01-07-13	0.9798	0.9798	0.9798	0.9798	0.9798
PT	Pure BU-LRIC	adopted	31-12-12	0.8100				
RO	Pure BU-LRIC	adopted	01-04-14	0.9600				
RS	Benchmarking			1.6793				
SE	Pure BU-LRIC	adopted	07-01-13	0.7061	0.6590	0.6590	0.5985	0.5985
SI	Pure BU-LRIC	adopted	01-09-14	1.1400	1.1400	1.1400	1.1400	1.1400
SK	Pure BU-LRIC	adopted	01-08-13	1.2260				
TR	BU LRAIC+							
UK	Pure BU-LRIC	adopted	01-04-13	0.5788	0.5724	0,5724		

Notes to Table 8

AL: The reported MTRs for Telekom Albania, Vodafone Albania and Albtelecom have been applied since 1.12.2014. The rate was calculated by AKEP using benchmarking methodology in 2014: the simple average of MTRs in BEREC countries that had applied pure BULRIC cost model until end year 2013. AKEP's decisions regarding the MTR of Plus Communication applicable from 01.04.2015 onward (glide path to reach the MTR of the other 3 MNOs i.e. symmetrical rates, by 1.04.2016) are under several court proceedings and at different stages of court appeals. The reported MTR for Plus Communication applicable from 01.01.2017 is based on the clarification issued by the Administrative Court on 18.01.2017 regarding its decision on 31.10.2016, which revoked AKEP decision to set the MTR of Plus Communication symmetrical to the MTR of the other 3 MNOs starting from 1.04.2016. These decisions of the Administrative Court are currently under appeal to the Administrative Court of Appeal.

A new market analysis for mobile call termination is currently under public consultation.

BE: The draft decision is currently being notified to the Belgian competition authority and is expected to be notified afterwards to the EC.

BG: With Decision 585 from 24 November 2016 CRC approved cost-oriented mobile termination rates based on Pure Bu-LRIC model as follows:

from 01.12.2016 - 0.014 BGN/minute

from 01.01.2017 - 0.014 BGN/minute

from 01.01.2018 - 0.014 BGN/minute

from 01.01.2019 - 0.014 BGN/minute

from 01.01.2020 - 0.014 BGN/minute

No MTRs peak/off-peak differentiation.

CY: The regulated MTRs are based on a benchmarking methodology. They are based on the average MTRs of all EU member states that have applied a BULRIC model according to the TR Recommendation. Currently, OCECPR is developing a BULRIC model and as soon as the results of the model are finalized they will be imposed accordingly.

DE:

*Deviating from the specified regulation periods, MTR are valid for the following BNetzA regulation periods:

01.12.2016 until 30.11.2017: 1.10 Eurocent/Minute

01.12.2017 until 30.11.2018: 1.07 Eurocent/Minute

01.12.2018 until 30.11.2019: 0.95 Eurocent/Minute

DK: The DBA issues MTR ultimo any year for the entire following year. Hence, the MTR for 2018 is yet underived and will be notified in H2 2017.

EL: EETT is currently in the process of notifying its draft measure regarding Market 2. Thus, till the adoption of the final measure (which can be earlier than 01.07.2017) the price will be 1.072 eurocents/min for all operators. According to the draft measure that was set to public consultation, the MTRs for the following years for all operators would be as follows: 0.982 eurocents/min for the rest of 2017, 0.958 eurocent/min for 2018, 0.946 eurocents/min for 2019. All these rates are derived from a pure LRIC bottom-up model developed by EETT.

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 01.07.2013.

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 2, 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: 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.

IS: Benchmark against BU-LRIC made in August 2016 for validity in 2017. Notified 1 October to ESA and ratified 1 November.

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

Last step of glide path, effective since 01.01.2013: 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.

The effective MTR as of May 1, 2016 is 3.9 CHF-cents per minute.

LV: Latvian NRA doesn't apply any glide path.

ME: NRA in Montenegro does not apply any glide path for MTR. Currently SMP operators have applied MTR based on TD LRIC methodology and cost model.

PT: In August 6, 2015 ANACOM approved a new decision establishing a MTR based on the results of the revised BU pure LRIC cost model. The same decision established that MTR should be updated in 01.07.2016 and also in 01.07.2017, having in consideration the results of the pure LRIC cost model adjusted in accordance with the inflation rate.

RO: No glide path

RS: Price of 2.07 RSD is effective from 01.01.2017, until new RATEL's decision.

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 when necessary.

UK: Future rates are dependent on the level of inflation. For the above we have assumed an inflation rate of 2% per annum from 2012/13 to 2017/18. All prices are nominal.

Annex 7 SMS TR per operator as of 1 January 2017

Table 9

Country	Operator	SMS TR (eurocents)		Subscribers		Market share
		<i>per operator</i>	<i>WA per country</i>	<i>per operator</i>	<i>Total per country</i>	
AL	Telekom Albania	0.7347	0.7347	1,133,323	3,490,686	32.47%
	Vodafone Albania	0.7347		1,730,990		49.59%
	Albtelecom	0.7347		445,391		12.76%
	Plus Communication	0.7347		180,982		5.18%
AT	A1Telekom Austria	<i>n.a.</i>	3.1100	5,400,000	13,505,000	39.99%
	T-Mobile Austria	<i>n.a.</i>		3,700,000		27.40%
	Hutchison Drei Austria	<i>n.a.</i>		3,800,000		28.14%
BE	Proximus (incl light MVNO)	4.9600	4.9600	<i>confidential</i>	12,309,278	<i>confidential</i>
	Orange Belgium (incl light MVNO)	4.9600		<i>confidential</i>		<i>confidential</i>
	Telenet Group (incl light MVNO)	4.9600		<i>confidential</i>		<i>confidential</i>
BG	Mobiltel	<i>confidential</i>	confidential	<i>confidential</i>	<i>confidential</i>	39.68%
	Telenor Bulgaria	<i>confidential</i>		<i>confidential</i>		33.44%
	BTC	<i>confidential</i>		<i>confidential</i>		26.86%
CH	Swisscom	<i>confidential</i>	4.1203	6,571,315	10,683,786	61.51%
	Sunrise	<i>confidential</i>		2,395,012		22.42%
	Salt	<i>confidential</i>		1,717,459		16.08%
CY	Cyta	0.5500	0.6017	676,273	1,086,760	62.23%
	Primetel	0.7300		47,687		4.39%
	MTN	0.6800		353,375		32.52%
CZ	T-Mobile Czech Republic a.s.	<i>confidential</i>	confidential	<i>confidential</i>	<i>confidential</i>	38.62%

	O2 Czech Republic a.s.	<i>confidential</i>		<i>confidential</i>		30.49%
	Vodafone Czech Republic a.s.	<i>confidential</i>		<i>confidential</i>		23.69%
DE	Telekom Deutschland	n.a.	n.a.	41,849,000	128,870,000	32.22%
	Vodafone	n.a.		43,700,000		33.65%
	Telefónica Germany GmbH & Co. OHG	n.a.		44,321,000		34.13%
DK	TDC	n.a.	n.a.	3,093,807	8,363,039	36.99%
	Telenor	n.a.		1,894,506		22.65%
	Telia	n.a.		1,504,803		17.99%
	3 (Hi3G)	n.a.		1,189,866		14.23%
EE	Telia Eesti AS	2.6000	2.2998	758,224	1,897,921	39.95%
	Elisa Eesti AS	2.1000		630,490		33.22%
	Tele2 Eesti AS	2.1000		509,207		26.83%
EL	Cosmote	Confidential	3.0000	Confidential	12,620,915	Confidential
	Vodafone	Confidential		Confidential		Confidential
	Wind	Confidential		Confidential		Confidential
ES	Movistar	confidential	2.6382	15,284,526	51,176,157	29.87%
	Vodafone	confidential		14,018,208		27.39%
	Orange	confidential		13,066,113		25.53%
	Yoigo	confidential		3,239,748		6.33%
FI	DNA	n.a.	n.a.	2,491,000	9,502,000	26.22%
	Elisa			3,686,000		38.79%
	TeliaSonera			3,259,000		34.30%
FR	Orange	1.0000	1.0000	n,a,	72,966,000	n.a.
	SFR	1.0000		n,a,		n.a.
	Bouygues Telecom	1.0000		n,a,		n.a.
	Free Mobile	1.0000		n,a,		n.a.
HR	HT	<i>n.a.</i>	n.a.	<i>confidential</i>	4,672,091	<i>confidential</i>
	VIPnet	<i>n.a.</i>		<i>confidential</i>		<i>confidential</i>
	Tele2	<i>n.a.</i>		<i>confidential</i>		<i>confidential</i>

HU	T-Mobile	4.5302	4.5302	<i>confidential</i>	<i>confidential</i>	<i>confidential</i>
	Telenor	4.5302		<i>confidential</i>		<i>confidential</i>
	Vodafone	4.5302		<i>confidential</i>		<i>confidential</i>
IE	Vodafone	3.1700	3.1700	1,807,369	4,916,241	36.76%
	Three Ireland Group	3.1700		1,601,094		32.57%
	eircom Group mobile	3.1700		992,089		20.18%
	Tescomobile	3.1700		358,527		7.29%
IS	Siminn	3.1563	3.1563	147,126	432,999	33.98%
	Vodafone	3.1563		119,688		27.64%
	Nova	3.1563		149,850		34.61%
	365/Tal	3.1563		16,335		3.77%
IT	Telecom Italia	<i>confidential</i>	3.0920	29,549,390	97,394,578	30.34%
	Vodafone Italia S.p.A.	<i>confidential</i>		28,480,101		29.24%
	Wind Telecomunicazioni	<i>confidential</i>		21,774,445		22.36%
	H3G S.p.A.	<i>confidential</i>		10,434,812		10.71%
	Poste Mobile	<i>confidential</i>		3,676,200		3.77%
LI	Salt (Liechtenstein) AG	<i>confidential</i>	5.8431	<i>confidential</i>	10,197	<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	0.7240	0.9079	1,823,407	4,238,731	43.02%
	Omnitel	0.7240		1,275,316		30.09%
	Bite Lietuva	1.4480		1,055,240		24.90%
LU	Post Télécom	n.a.	n.a.	429,000	916,000	46.83%
	Tango	n.a.		280,000		30.57%
	Orange	n.a.		153,700		15.06%
LV	Latvijas Mobilais Telefons	2.1300	2.1300	931,921	2,695,261	34.58%
	Tele2	2.1300		968,312		35.93%
	Bite Latvija	2.1300		534,564		19.83%
	Zetcom	2.1300		178,032		6.61%
ME	Telenor	1.5000	1.5000	377,701		36.29%

	Crnogorski Telekom	1.5000		361,149	1,040,747	34.70%
	Mtel	1.5000		301,897		29.01%
FYROM	Makedonski Telekom	0.4879	0.4879	1,064,234	2,124,225	50.10%
	VIP Macedonia	0.4879		1,052,127		49.53%
MT	GoMobile	1.8201	1.8521	225,898	586,140	38.54%
	Melita Mobile	1.9386		97,788		16.68%
	Vodafone	1.8473		252,335		43.05%
NL	KPN	n. a.	n. a	7,089,360	21,939,635	32.31%
	Vodafone	n. a		5,189,015		23.65%
	T-Mobile	n. a		3,610,693		16.46%
	Tele2	n. a		990,931		4.52%
NO	Telenor	3.8733	3.8733	2,900,528	5,718,740	50.72%
	TeliaSonera	3.8733		2,090,457		36.55%
	Lyca	3.8733		217,200		3.80%
	Phonero	3.8733		109,458		1.91%
PL	Orange Polska S.A.	1.1420	1.1420	confidential	54,537,230	confidential
	Polkomtel sp. z o.o.	1.1420		confidential		confidential
	P4 sp. z o.o.	1.1420		confidential		confidential
	T-Mobile Polska S.A.	1.1420		confidential		confidential
PT	MEO	confidential	0.8300	confidential	17,079,569	confidential
	VODAFONE	confidential		confidential		confidential
	NOS	confidential		confidential		confidential
RO	Vodafone Romania S.A.	confidential	2.3000	confidential	22,898,768	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 - MTS	1.6225	1.6225	confidential	9,094,447	46.80%
	Telenor	1.6225		confidential		31.20%
	VIP mobile	1.6225		confidential		22.00%

SE	Telia Company	n. a.	n. a.	5,204,905	14,526,477	35.83%
	Tele2	n. a.		4,182,717		28.79%
	Telenor	n. a.		2,555,167		17.59%
	Hi3G	n. a.		1,998,195		13.76%
SI	Telekom Slovenije	Bill & Keep	Bill & Keep	<i>confidential</i>	<i>confidential</i>	49.26%
	Si.mobil			<i>confidential</i>		29.94%
	Telemach			<i>confidential</i>		16.74%
	T-2			<i>confidential</i>		4.06%
SK	Orange Slovensko, a.s.	2.5000	2.500	<i>confidential</i>	6,211,154	<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 Mobile a.s.	2.5000		<i>confidential</i>		<i>confidential</i>
TR	Turkcell	0.1213	0.1241	33,044,167	75,061,699	44.02%
	Vodafone	0.1213		23,455,310		31.25%
	Avea	0.1326		18,562,222		24.73%
UK	EE	<i>confidential</i>	1.8818	<i>confidential</i>	75,047,917	<i>confidential</i>
	Telefonica	<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 to Table 9

For notes concerning subscriber numbers see Notes to Table 7

BG: SMS call termination rates are not regulated in Bulgaria.

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: SMS call termination rates are not regulated in Germany

DK: No regulation for SMS is issued in Denmark anymore. We abolished a regulated termination charge as of 2016.

FI: SMS termination rates are not regulated in Finland.

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

IS: SMS TR is unregulated.

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."

LU: No data available as not regulated.

ME: Current SMS termination rates are applied from 01.01.2017. Before that SMS termination rates was 2.2 eurocents per SMS

PL: Subscribers as of 31.12.2015.

PT: One MVNO applies a different rate (1.27 euro cents) in a reciprocal way, but it only has around 1% of market share.

SE: PTS does not monitor the SMS wholesale termination rates.

SK: 0 - 100 000 SMS – 0.0284 €

100 001 - 500 000 – 0.0261 €

500 001 and more – 0.0250 €

all the operators meet the requirements for 0.0250 € rate

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

Annex 8 Abbreviations and Exchange rates

Table 10 – Abbreviations

AL	Albania
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 11 – Exchange Rates¹²

COUNTRY	1 EURO
AL	136.10
BG	1.96
CH	1.08
CZ	27.03
DK	7.44
HR	7.52
HU	309.34
IS	121.98
LI	1.08
FYROM	61.49
NO	9.04
PL	4.38
RO	4.51
RS	123.27
SE	9.76
TR	3.54
UK	0.87

¹² ECB website:

For AL at https://www.bankofalbania.org/web/Exchange_Rates_2014_2.php

For IS at <http://www.cb.is/exch.-rates/time-series/>

For FYROM at <http://www.nbrm.mk/default-en.asp?ItemID=8E377C2B70F83044AF7B7B826516B117>

For RS at http://nbs.rs/export/sites/default/internet/english/scripts/kl_period.html

Annex 9 Glossary

Avg (s)	Simple average
Avg (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