

Termination rates at European level

July 2018

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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 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 within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC 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 July 2018, referring – if not differently indicated – to data as of 1st July 2018. It includes rates from the thirty seven (37) NRAs¹ that provided responses to our request.

As of July 2018, 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 Avg (S)) stands at 0,3277 cents per minute.
- The lowest regulated FTR simple average of European Union incumbents (only EU member states Avg EU28(S)) stands at 0,2134 cents per minute.
- The MTR simple average (Avg (S)) at the European level (all 37 countries) stands at 0,9402 cents per minute, whereas the weighted average² (Avg (W)) at European level is estimated at 0,8467 cents per minute.
- The MTR simple average at the EU level (only EU member states) stands at 0,8342 cents per minute, whereas the weighted average at EU level is estimated at 0,8541cents 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.

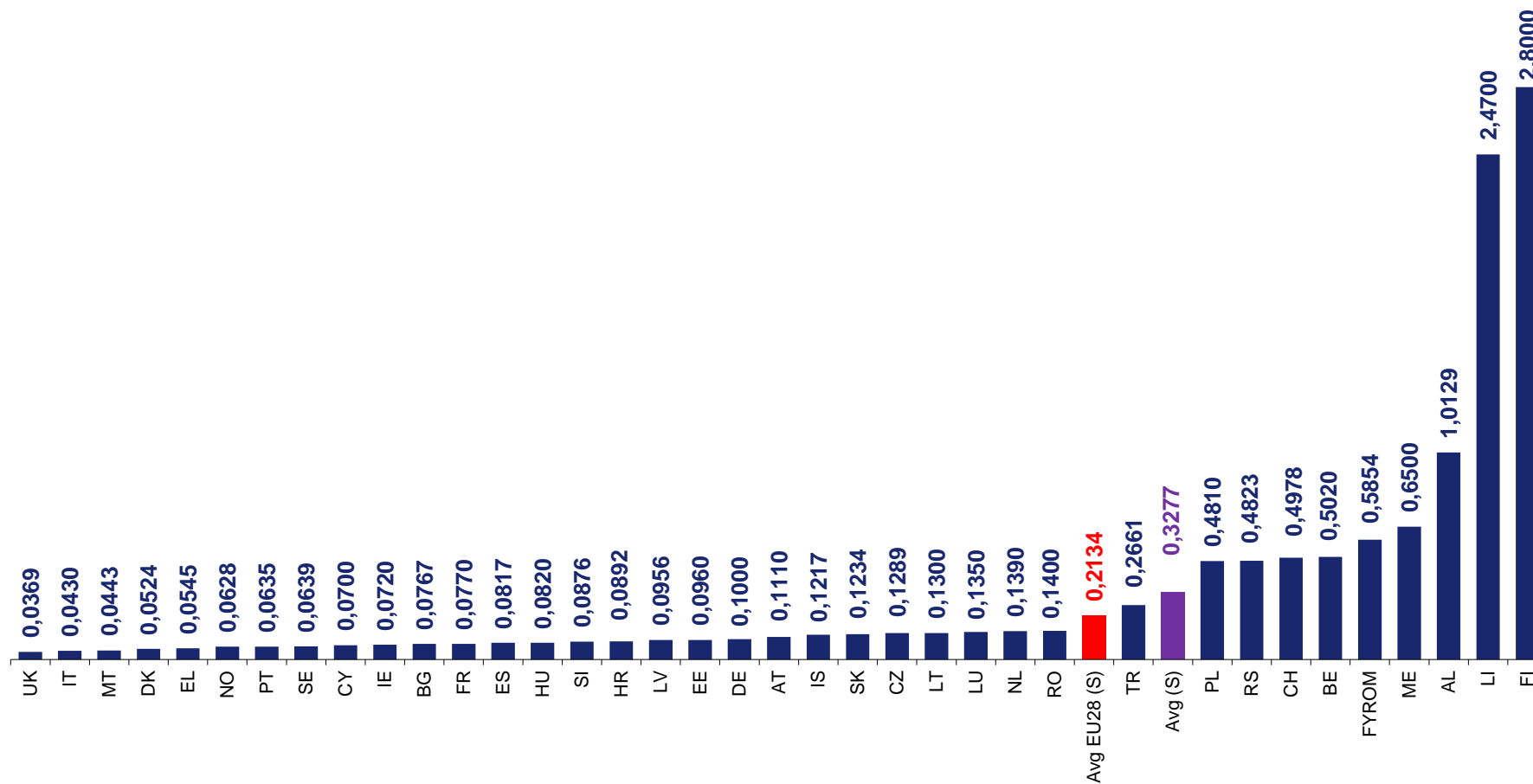
² The weighted averages weight each country's average rate with the share of the country's subscribers (total subscribers per country / total subscribers in all countries).

- The SMS TR simple average at the European level is 2,3641 cents per SMS, whereas the weighted average is reported to be 2,0453 cents per SMS.
- Since not all EU member states report their SMS TR, no averages at the EU level could be calculated.

For non-Euro countries, the average exchange rate for the second quarter of the year (Q2 2018) was used for the calculation of FTRs, MTRs and SMS TRs. The exchange rates used are reported in [Annex 10](#).

Overview of incumbents' lowest regulated fixed termination rates per country – July 2018 (eurocents per minute of service)

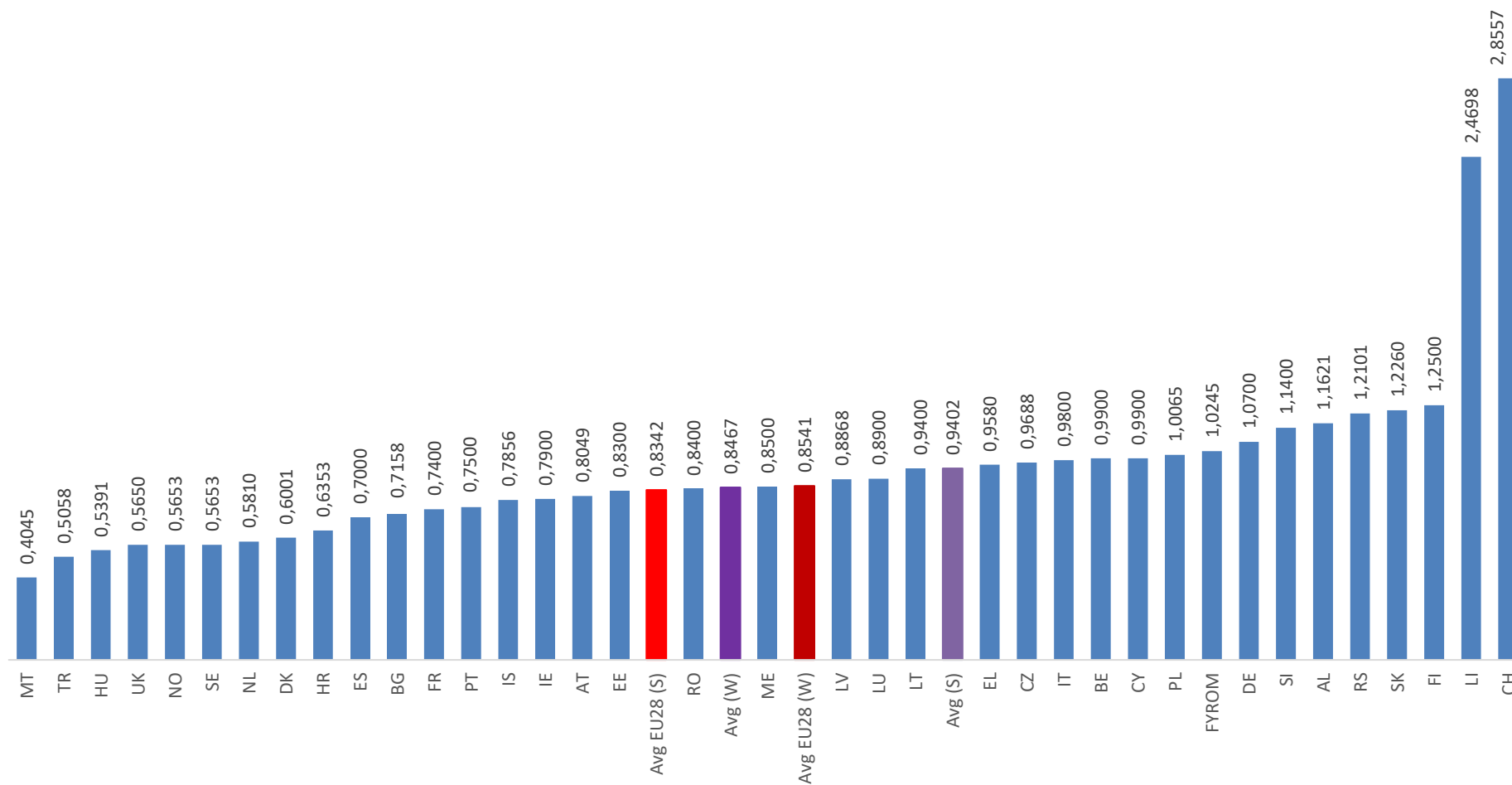
Figure 1 FTRs



Source: NRAs, BEREC

MTR per country – July 2018 (eurocents per minute of service)

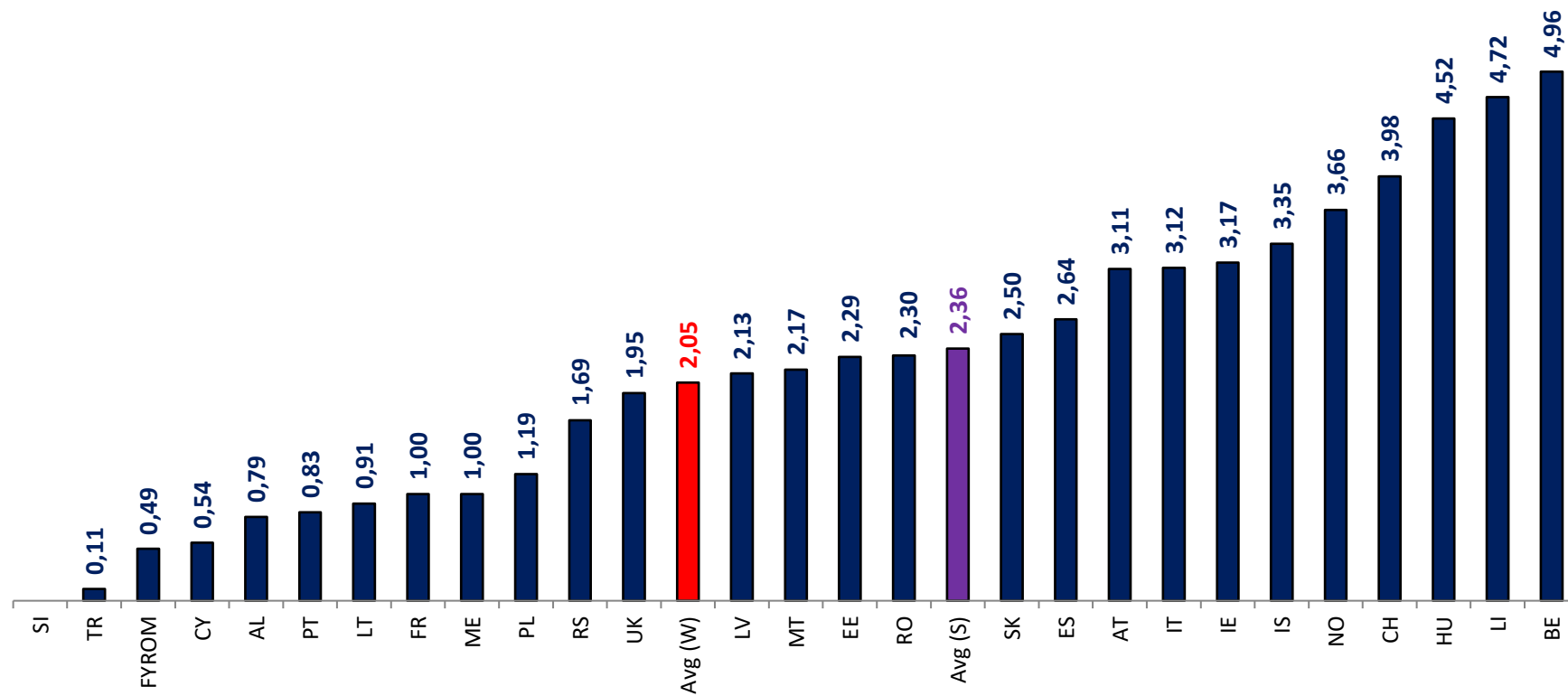
Figure 2 MTRs



Source: NRAs, BEREC

SMS TR per country – July 2018 (eurocents per message)

Figure 3 SMS TRs



Source: NRAs, BEREC

*Data for IS are not updated

2. Fixed networks – voice interconnection

The regulation of FTRs has been harmonized by the Commission Recommendation of 7 May 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 (BE and CH), 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 1³, 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 the 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 (DK, HR and PL), 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

³ Layer 1 is defined as the closest possible interconnection level to the network termination point.

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

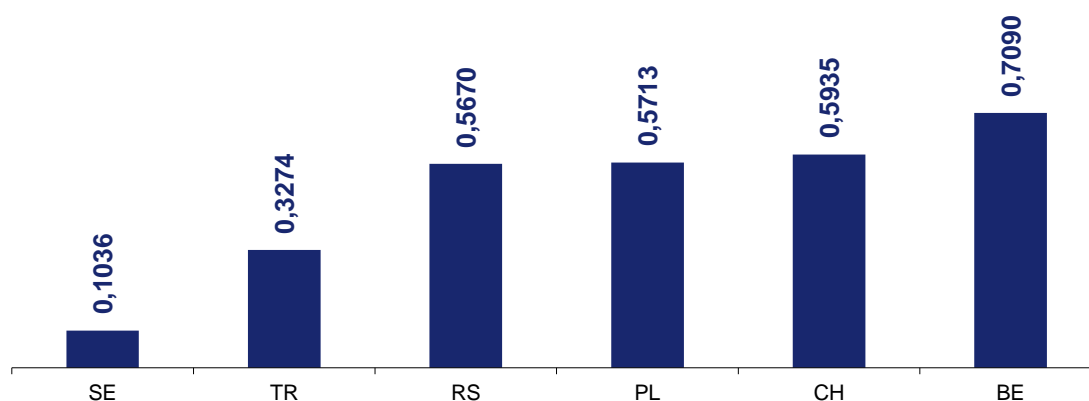
The lowest regulated rate is the rate applied by the operator at the level of interconnection that is closest to the network termination point. The second and third lowest regulated rates apply only to operators that have more than one regulated rate/interconnection layer.

Two (2) countries out of 37 maintain interconnection services in fixed networks at only two different levels in the hierarchy of the incumbents' networks and other four (4) countries have three layers of interconnection.

Incumbents' fixed termination rates per lowest regulated rate and country

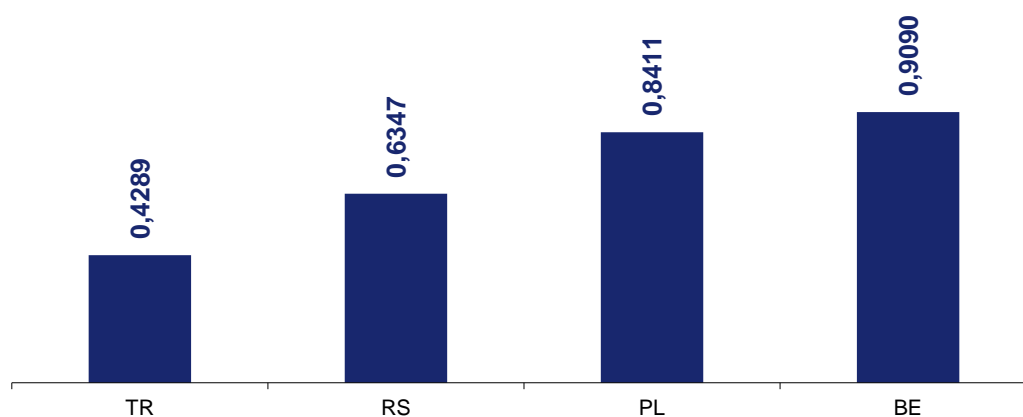
For more information on the individual lowest rates of respective incumbents, please refer to Figure 1 and respectively [Annex 1](#).

Figure 4 Incumbents' second lowest regulated fixed termination rate per country (eurocents per minute)



Source: NRAs, BEREC

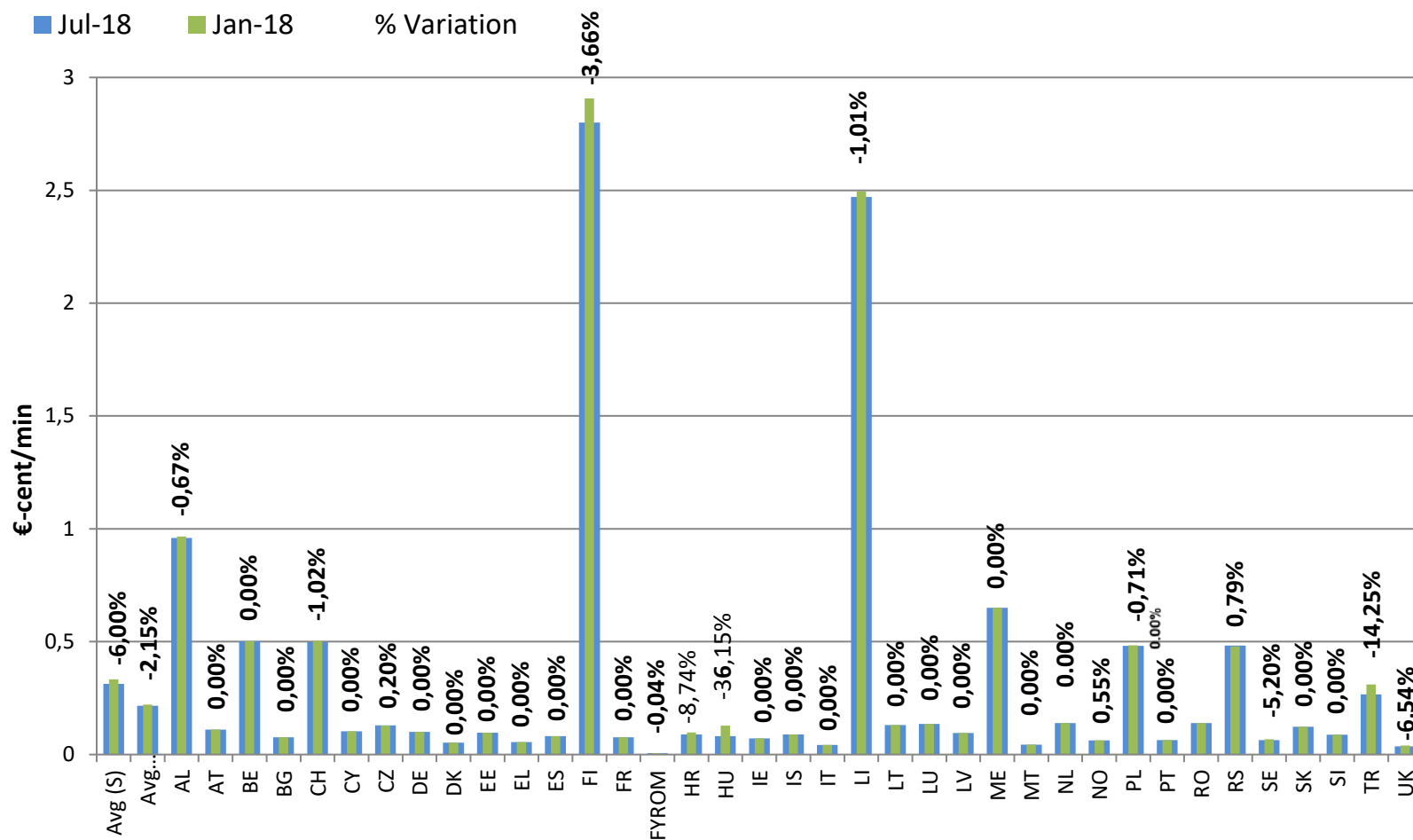
Figure 5 Incumbents' third lowest regulated fixed termination rate per country (eurocents per minute)



Source: NRAs, BEREC

2.3. Short term evolution of fixed incumbents' FTRs (from January 2018 to July 2018)

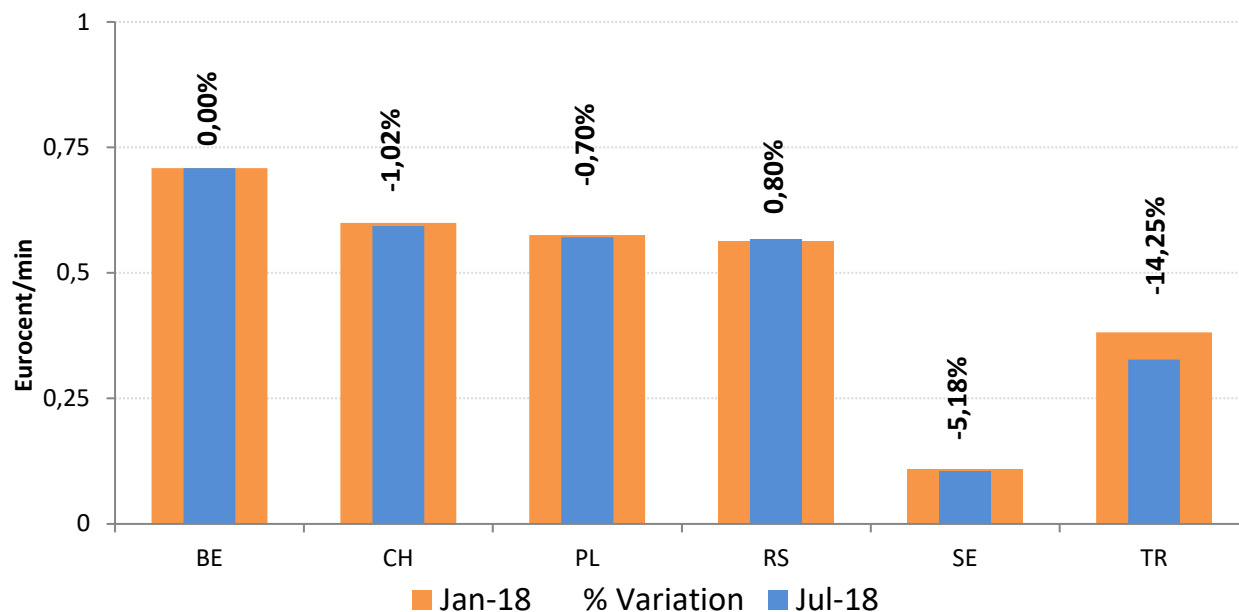
Figure 6 Incumbents' lowest regulated rate per country (eurocents/min)



Source: NRAs, BEREC

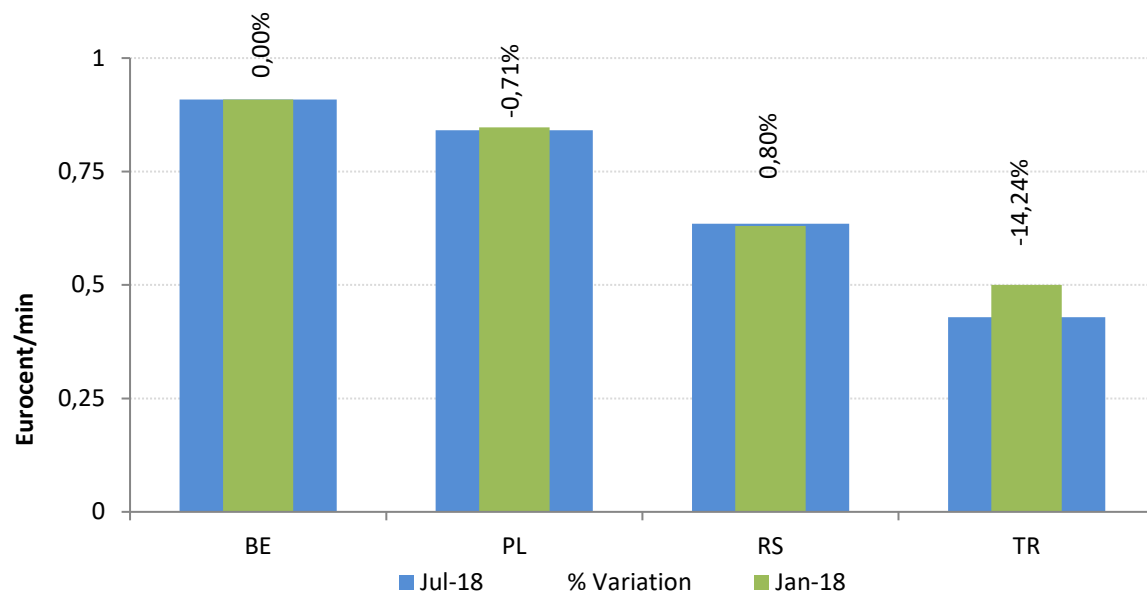
The above chart shows the variation in percentage of the lowest regulated fixed termination rate of incumbents between January 2018 and July 2018. For easier comparison, rates are stated in eurocents.

Figure 7 Incumbents' second lowest regulated rate per country



Source: NRAs, BEREC

Figure 8 Incumbents' third lowest regulated rate per country



Source: NRAs, BEREC

2.4. Average fixed termination revenue per country

Figure 9 illustrates the average revenue per minute from interconnection services across all layers and for all operators is reported, together with the simple average (horizontal line). The data refer to the entire year of 2017, unless otherwise stated in the notes of [Annex 2](#).

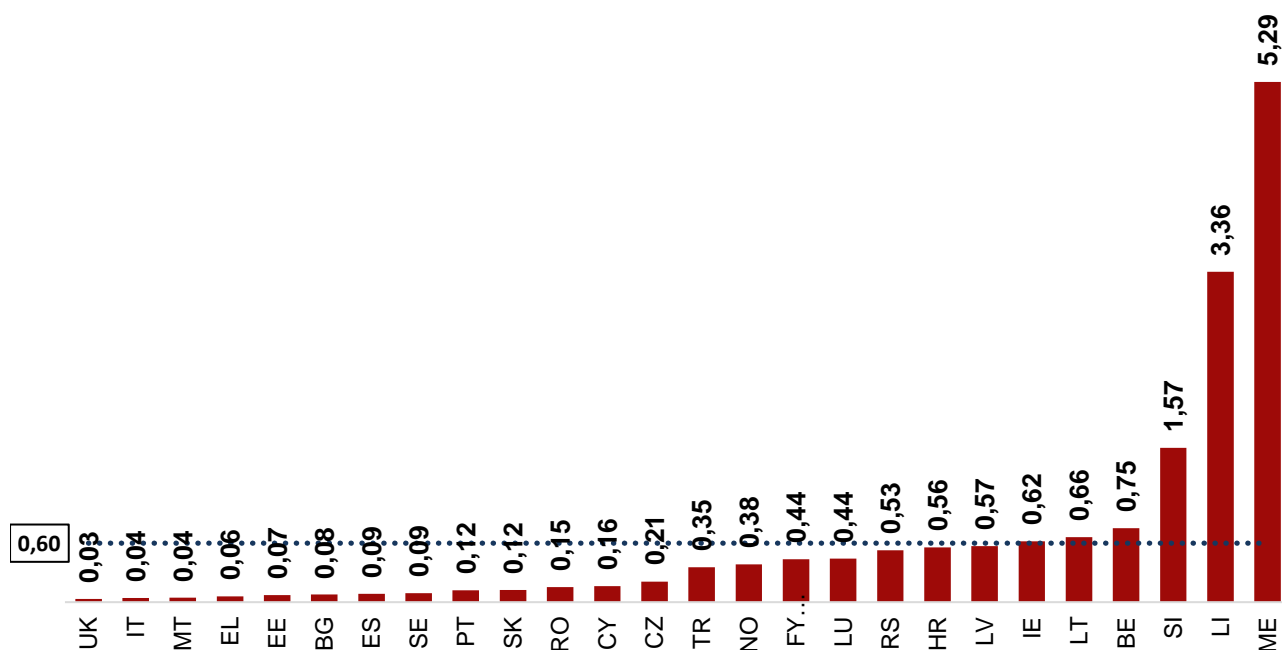
Note that the average revenues per minute provided are aggregated for each country to:

- 1) the different existing layers of interconnection,
- 2) the different operators (i.e.: incumbents and the rest), and
- 3) the different prices deriving from the peak /off-peak differentiation in a number of countries.

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

For more details please consult [Annex 2](#).

Figure 9 Average revenue per minute for all operators (eurocents per minute)

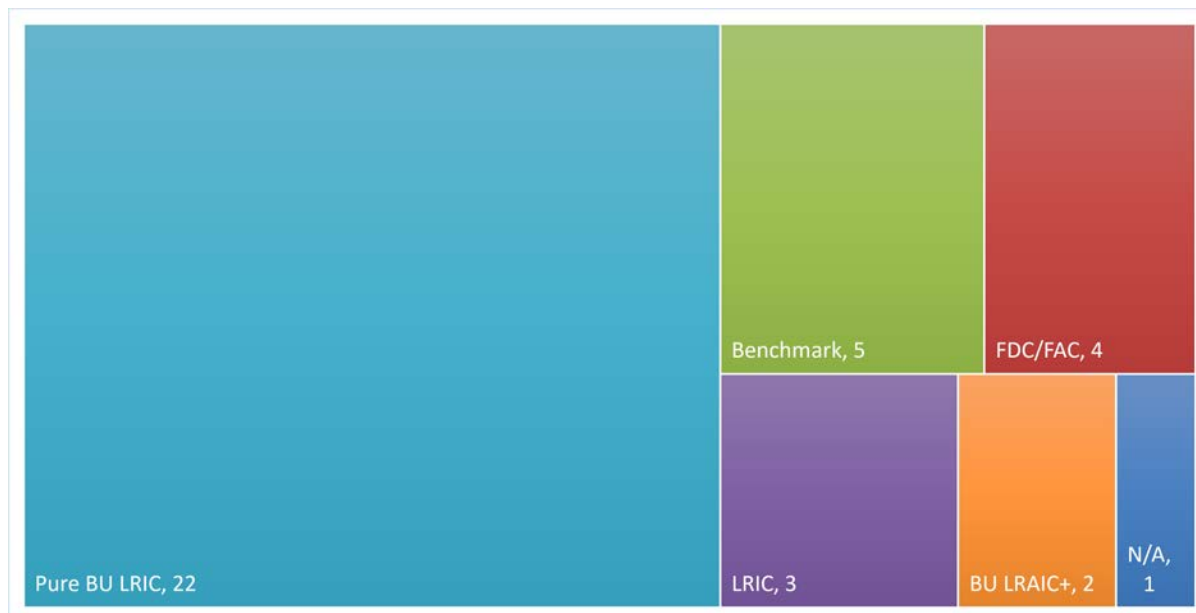


Source: NRAs, BEREC

2.5. FTR regulatory model implemented and symmetry overview

22 NRAs use Pure BU LRIC models to set FTRs, 5 NRAs use Benchmarking approaches and FDC/FAC is used by 4 NRAs, also 3 NRAs use LRIC and BU LRAIC+ is used only by 2 NRAs.

Figure 10 Cost accounting models for FTR used by NRAs

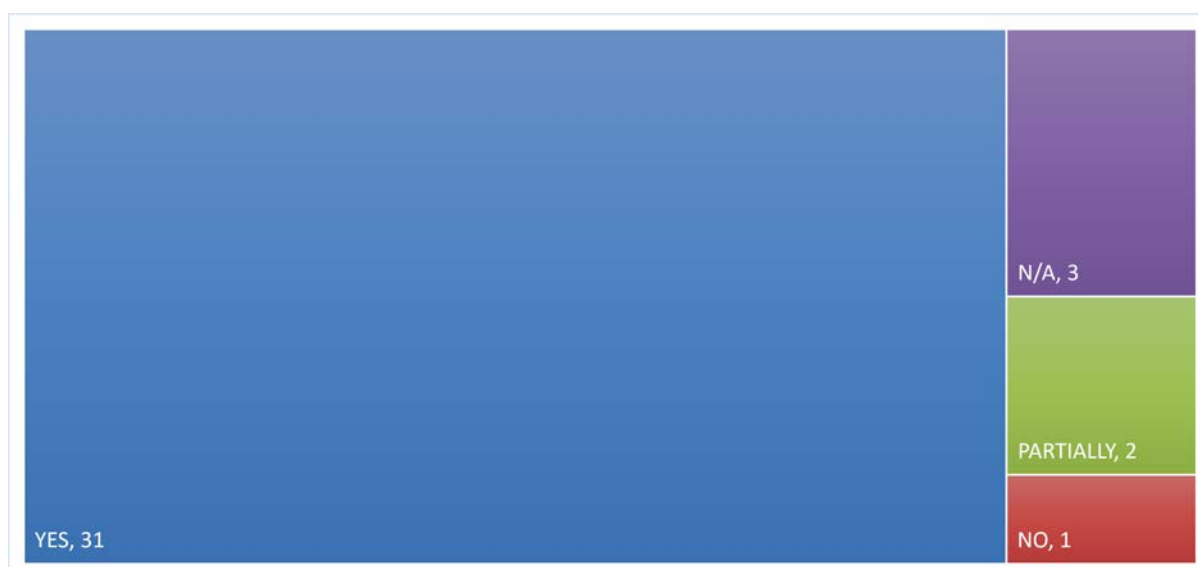


Source: NRAs, BEREC

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

According to the Commission Recommendation of 7 May 2009 on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EU (2009/396/EC), 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 the 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 (31), FTRs are symmetric across all operators. 2 NRAs reported partial symmetry while rates are not symmetric in only 1 of the reporting countries. In one of the cases, there is only one operator in the country, therefore, symmetry is not applicable.

Figure 11 FTRs Symmetry

Source: NRAs, BEREC

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

2.6. Number of lines and market shares

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

3. Mobile networks – voice interconnection

This section presents the benchmark of mobile termination rates (MTR) with data as of 1 July 2018 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 MTRs⁴.

The present overview of MTRs is based upon the results of a request for information sent to all NRAs in July 2018. 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 comparable⁵:

- 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 cents/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 pre-paid consumers. Mobile subscribers (active SIM cards) means both 2G, 3G and 4G subscribers of a Mobile Network Operator or Mobile Virtual Network Operators. An active subscriber of mobile telephony means a subscriber of post-paid mobile telephony who has a valid contract, or a pre-paid subscriber who has made or received a call, sent an SMS or MMS or used data services at least once in the last 3 months. M2M, M2P and data-only SIMs cards should be excluded.⁶

Regarding the short-term MTR evolution (from January 2018 to July 2018), 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);

⁴ See [Annex 8 – Table 8](#)

⁵ Generally speaking, these assumptions may create margins of error in the present comparison, making it difficult to draw valid conclusions for policy purposes.

⁶ Please note that due to a specification of the definition of mobile subscribers the number of total subscribers in some countries changed significantly compared to the previous reports.

- ii. Currency exchange rate variations in non-Euro countries⁷;
- 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 July 2018)

Table 1 - Average MTR per country

Country	
AL	1,1621
AT	0,8049
BE	0,9900
BG	0,7158
CH	2,8557
CY	0,9900
CZ	0,9688
DE	1,0700
DK	0,6001
EE	0,8300
EL	0,9580
ES	0,7000
FI	1,2500
FR	0,7400
FYROM	1,0245
HR	0,6353
HU	0,5391
IE	0,7900
IS*	0,7856
IT	0,9800
LI	2,4698
LT	0,9400
LU	0,8900
LV	0,8868
ME	0,8500
MT	0,4045
NL	0,5810
NO	0,5653
PL	1,0065
PT	0,7500
RO	0,8400
RS	1,2101
SE	0,5653

⁷ This only affects short-term MTR evolution (figure 12) because the percentage of tariff variation in each country (figure 13) has been calculated by comparing rates expressed in terms of the national currency.

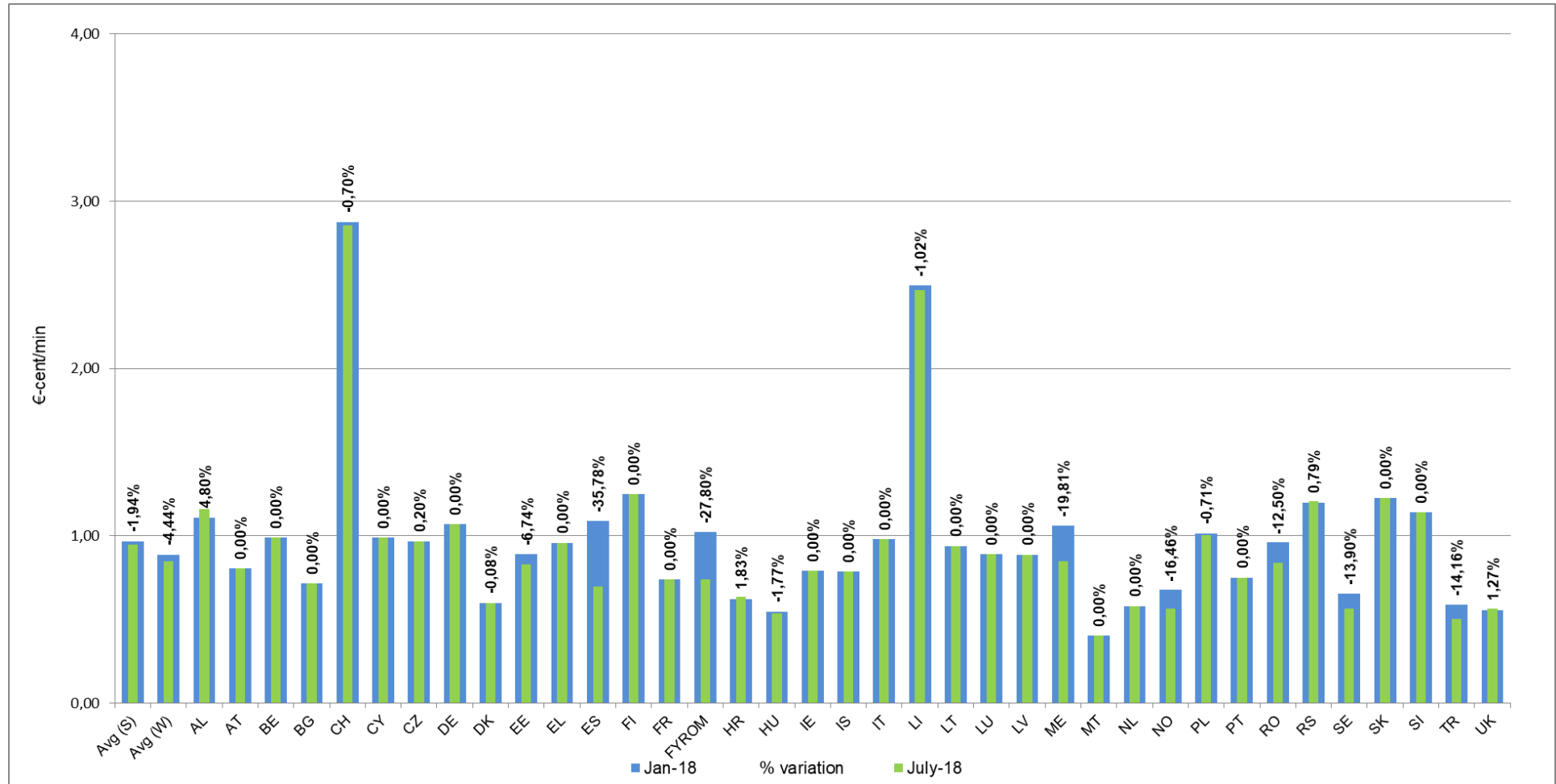
SI	1,1400
SK	1,2260
TR	0,5058
UK	0,5650
Avg (S)	0,9402
Avg (W)	0,8467
Avg EU28 (S)	0,8342
Avg EU28 (W)	0,8541

*Data for IS are not updated

Figures 12 and 13 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 January 2018 to July 2018)

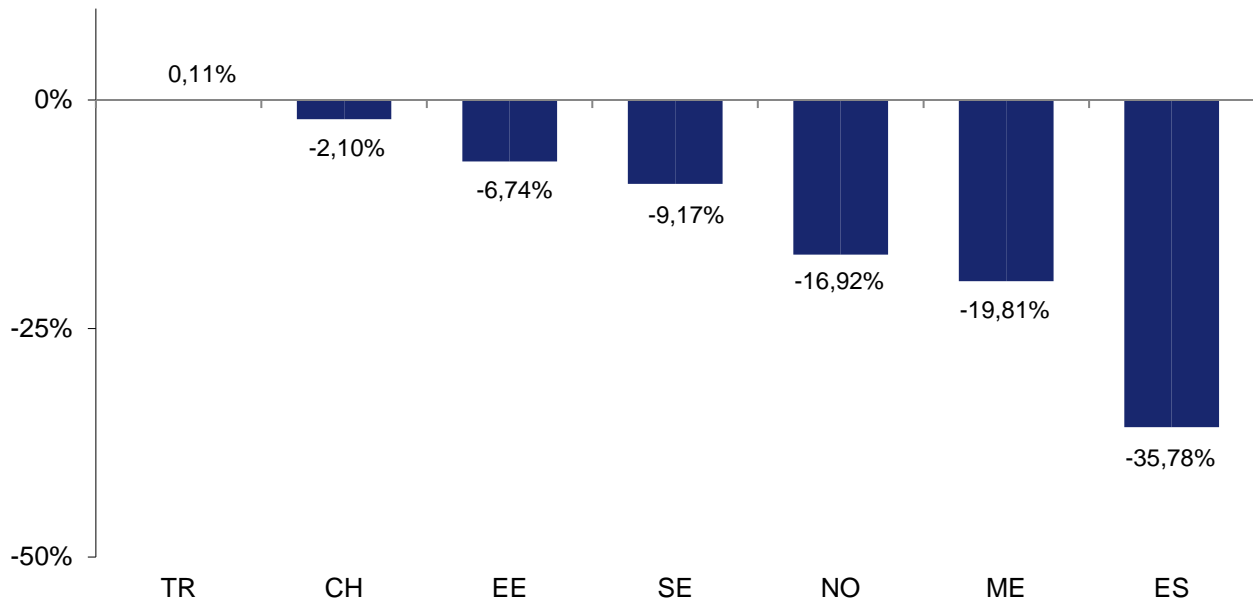
Figure 12 Variation in eurocents and %



Source: NRAs, BEREC

Variation of average MTRs in national currency per country (from January 2018 to July 2018)

Figure 13 Variation in national currency (%)



Source: NRAs, BEREC

Most countries did not experience a real short term variation of MTRs and therefore are not shown in figure 13. Iceland didn't provide any data.

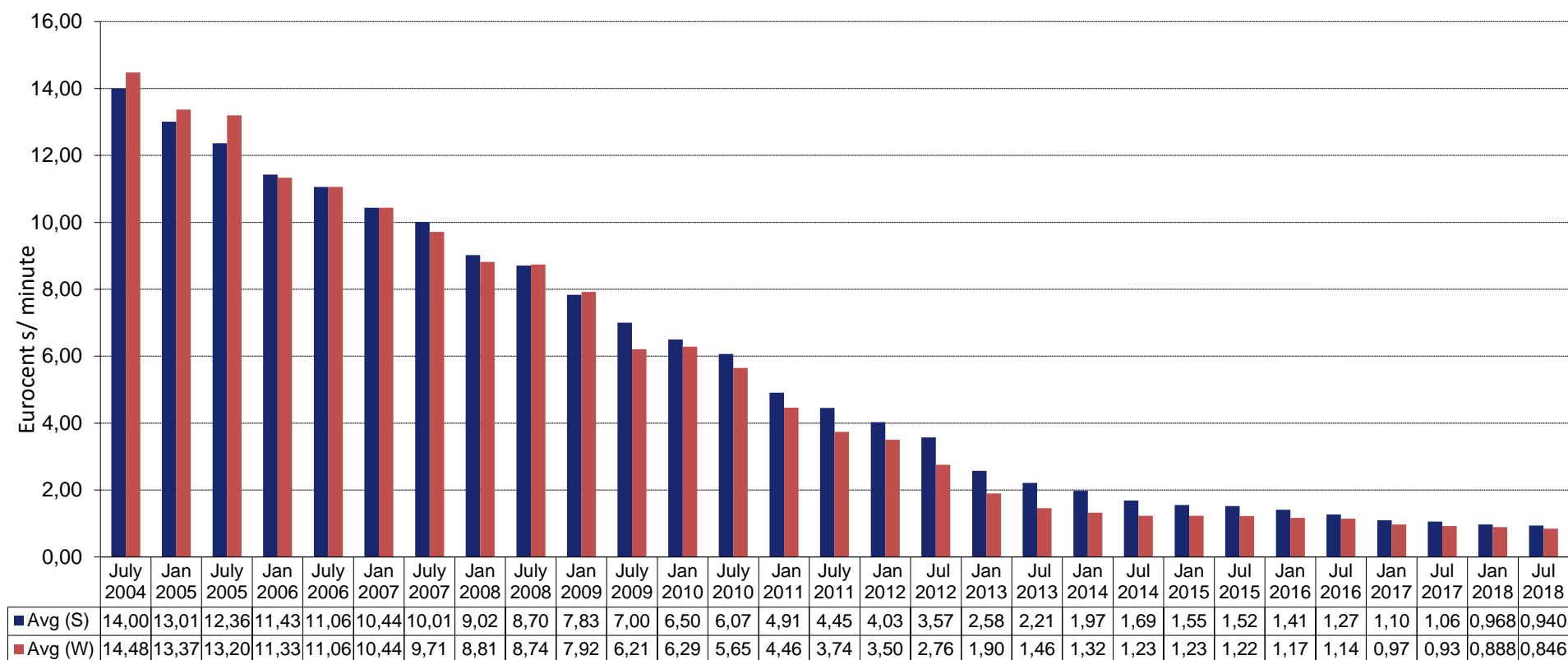
3.3. Average MTR per operator

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

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

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

Figure 14 Evolution of simple and weighted averages



Source: NRAs, BEREC

Note to figure 14: 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 15 and 16 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 93% since January 2004, from 14,08 cents to 0,94 cents in July 2018. When weighted, the average of European MTRs has declined even more, from 14,47 cents to 0,85 in the same period.

Figure 15 European MTRs simple average and cumulative decline

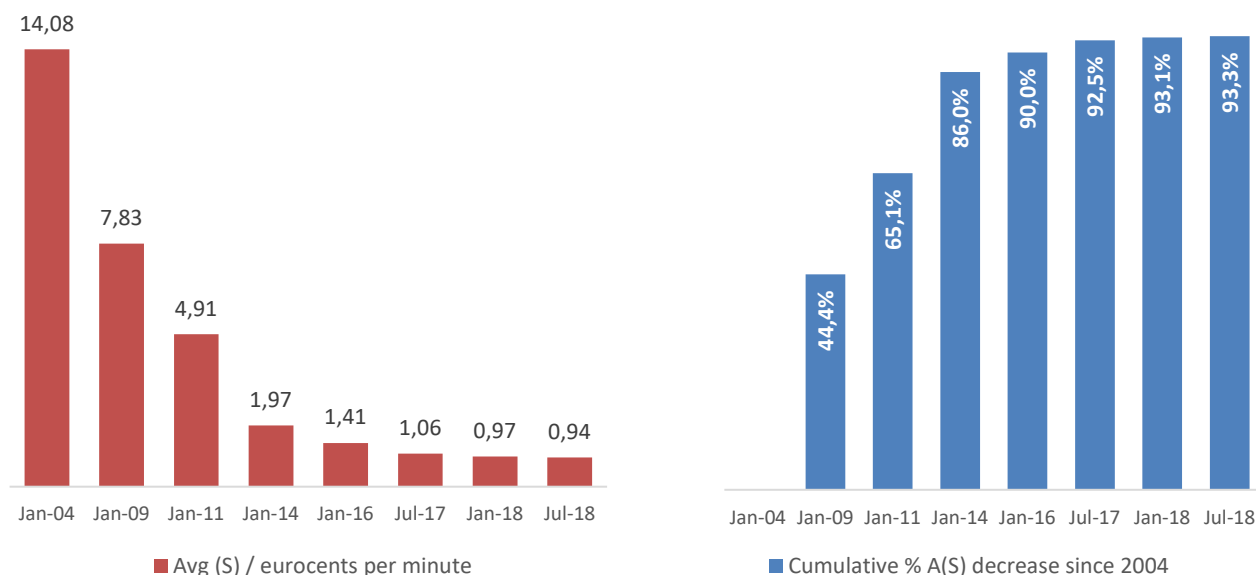
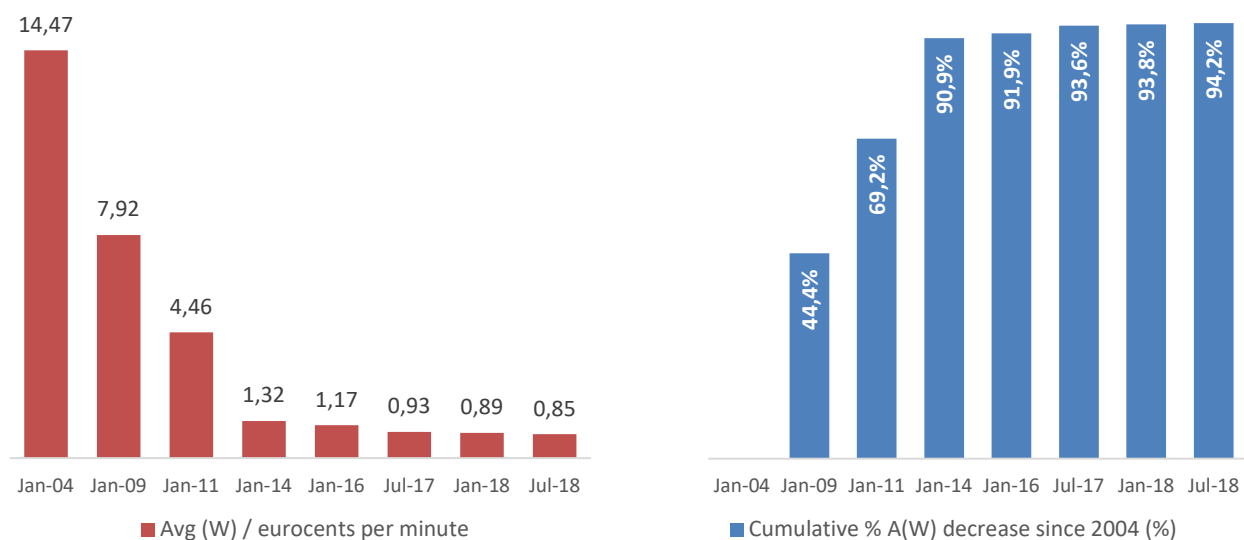


Figure 16 European MTRs weighted average and cumulative decline



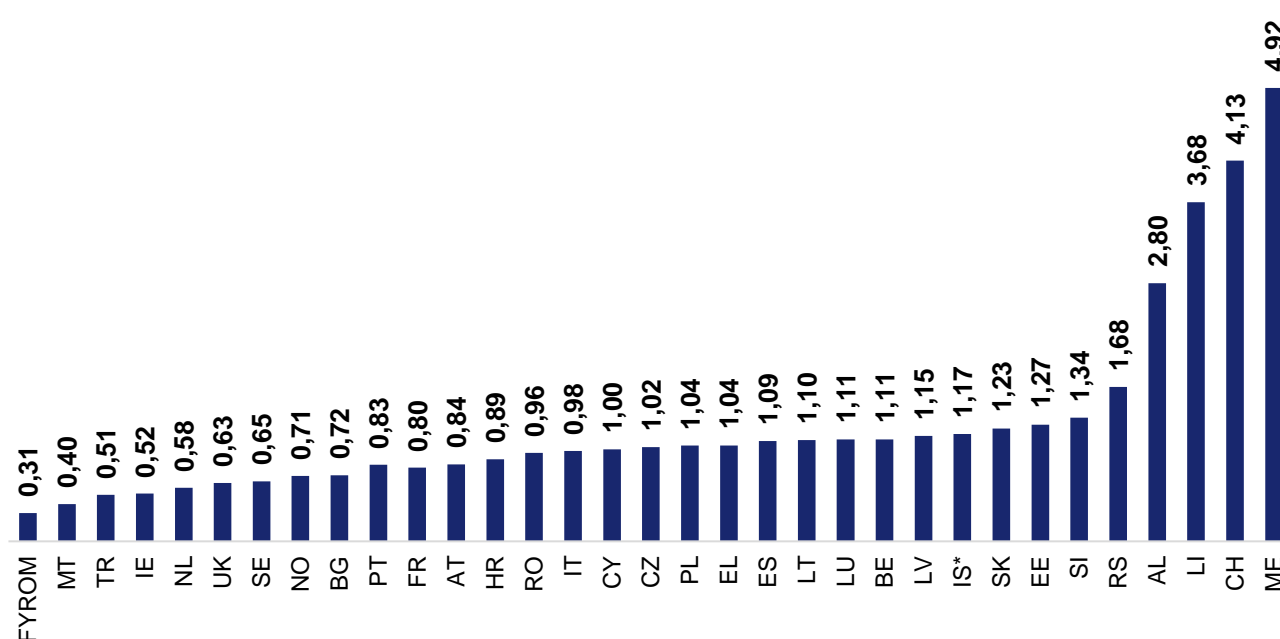
Source: NRAs, BEREC

3.5. Average mobile termination revenue per minute per country

The average wholesale termination revenue per minute is obtained as a ratio of total revenues from termination of voice services divided by the total number of minutes of termination provided by the operators. The data refer to the entire year, unless otherwise stated in the notes.

Some countries do not collect information about termination revenues or treat this data as confidential. Those countries are not included in the figure.

Figure 17 Average wholesale termination revenues per country (euro cent/min)



* Values for IS are last year's data

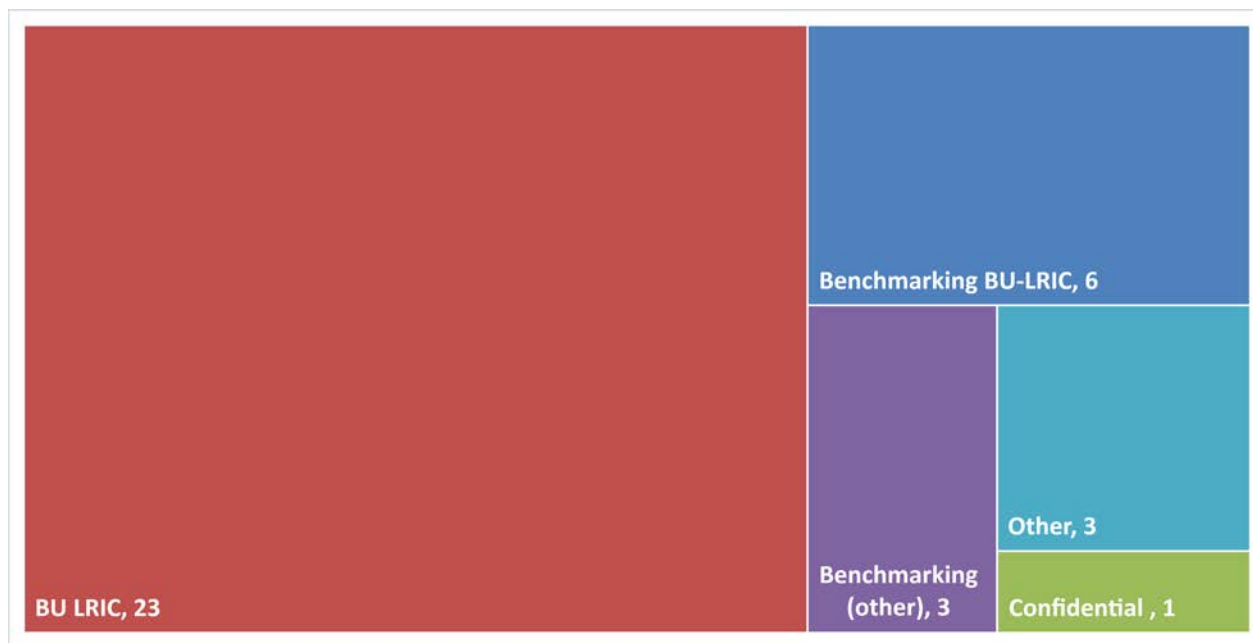
Source: NRAs, BEREC

For notes to figure 17, see [Annex 7](#).

3.6. Regulatory model implemented and glide paths for MTRs

In the majority of countries BU LRIC models are used to calculate the MTRs. However, a significant number of NRAs base their price decision on Benchmarking. In one country (Switzerland) MTRs are not regulated.

Figure 18 Cost accounting models used by NRAs



Source: NRAs, BEREC

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

4. Mobile networks - SMS interconnection

The short message service (SMS) is widely deployed and supported by operators. 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 July 2018. 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 considered⁸).

4.1. Assumptions made for the 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. 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):

- 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.
- 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). In contrast to the calculation of the average MTRs, M2M SIM cards are included for the calculation of average SMS TRs.

⁸ 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 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 10](#) are used.

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

4.2. Average SMS TR per country (as of July 2018)

Table 2 - Average SMS TR per country

Country	Average SMS TR per country (eurocents)
AL	0,7442
AT	3,1100
BE	4,9600
BG	Confidential
CH	3,9789
CY	0,5439
CZ	Confidential
DE	N/A
DK	N/A
EE	2,2861
EL	Confidential
ES	2,6365
FI	N/A
FR	1,0000
FYROM	0,4867
HR	N/A
HU	4,5196
IE	3,1700
IS *	3,3460
IT	3,1207
LI	4,7205
LT	0,9081
LU	N/A
LV	2,1300
ME	1,0000
MT	2,1654
NL	N/A
NO	3,6641
PL	1,1900
PT	0,8300
RO	2,3000
RS	1,6924
SE	N/A
SI	B&K
SK	2,5000
TR	0,1117
UK	1,9476
Average (S)	2,3641
Average (W)	2,0453

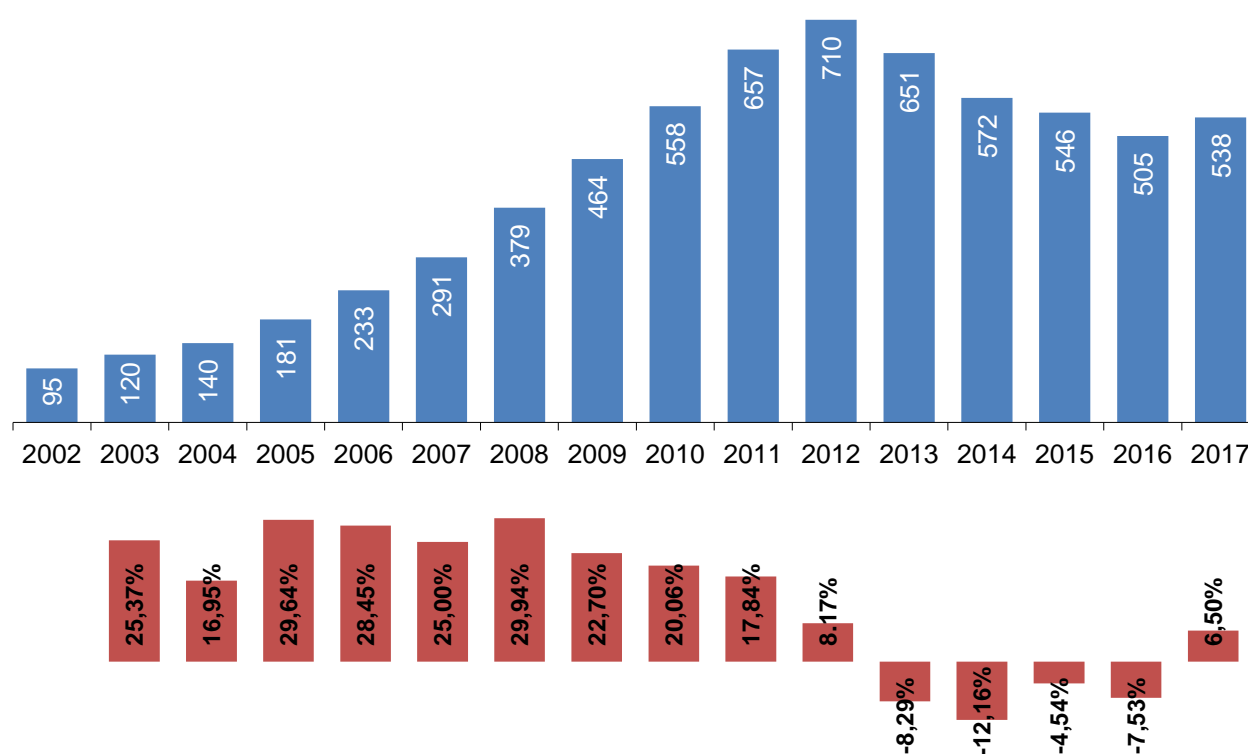
* Not updated

Source: NRAs, BEREC

4.3. Volumes of SMS sent (2017)

Figure 19 is based on the time series of the countries from which information was available from 2002 to 2017. Albania, Iceland and Netherlands didn't provide data. Montenegro and Lichtenstein don't have data from previous years in order to be calculated in the yearly variation.

Figure 19 Volumes of SMS sent (2017) and yearly variation (billions of units, %)



Note: Data from 32 European Countries

Source: NRAs, BEREC

Annex⁹

Annex 1 Fixed termination rates as of 1 July 2018

Table 3

Country	Operator	Lowest Regulated Rate	WA in cents
AL	Albtelecom	Single-rate	1,0129
	Abcom	Single-rate	1,0129
	Albanian Satellite Communications	Single-rate	1,0129
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
BE	Proximus	LRR	0,5020
	Proximus	2nd LRR	0,7090
	Proximus	3rd LRR	0,9090
BG	Bulgarian Telecommunication Company (incumbent)	Single-rate	0,0767
	A1 Bulgaria*	Single-rate	0,0767
	Telenor Bulgaria	Single-rate	0,0767
CH	Swisscom	LRR	0,4978
	Swisscom	2nd LRR	0,5935
CY	Cyta	Single-rate	0,0700
	Primetel	Single-rate	0,0700
	Cablenet	Single-rate	0,0700
	MTN	Single-rate	0,0700
CZ	Česká telekomunikační infrastruktura a.s.	Single-rate	0,1289
	UPC Česká republika, s.r.o.	Single-rate	0,1289
	Vodafone Czech Republic a.s.	Single-rate	0,1289
	T-Mobile Czech Republic a.s.	Single-rate	0,1289
	IPEX a.s.	Single-rate	0,1289
	České Radiokomunikace a.s.	Single-rate	0,1289
DE	Telekom Deutschland GmbH	Single-rate	0,1000
DK	TDC	Single-rate	0,0524
	Telia	Single-rate	0,0524
	Telenor	Single-rate	0,0524
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

⁹ For a Decimal separator in the tables is used **comma** to separate whole numbers from decimals and a **point** is used to indicate thousands in whole numbers. More information: <http://publications.europa.eu/code/en/en-360500.htm>

Country	Operator	Lowest Regulated Rate	WA in cents
	FORTHNET	Single-rate	0,0545
	VODAFONE	Single-rate	0,0545
	WIND	Single-rate	0,0545
ES	Telefónica de España	Single-rate	0,0817
	Vodafone - Ono	Single-rate	0,0817
	Orange	Single-rate	0,0817
FI	DNA Oyj	Single-rate	2,8000
	Elisa Oyj	Single-rate	2,8000
	TeliaSonera Finland Oyj	Single-rate	2,8000
FR	All operators	Single-rate	0,0770
FYROM	Makedonski Telekom	Single-rate	0,5854
	VIP operator	Single-rate	0,5854
	Robi	Single-rate	0,5854
HR	HT	Single-rate	0,0892
	OPTIMA	Single-rate	0,0892
	VIPnet	Single-rate	0,0892
HU	Magyar Telekom	Single-rate	0,0820
	Invitel	Single-rate	0,0820
	UPC	Single-rate	0,0820
IE	Eir	Single-rate	0,0720
	Virgin Media	Single-rate	0,0720
	Vodafone	Single-rate	0,0720
	Sky	Single-rate	0,0720
IS	Siminn	Single-rate	0,1217
	Vodafone	Single-rate	0,1217
IT	Telecom Italia	Single-rate	0,0430
	WindTre	Single-rate	0,0430
	Fastweb	Single-rate	0,0430
	Vodafone	Single-rate	0,0430
LT	Telia Lietuva, AB	Single-rate	0,1300
	UAB „CSC Telecom“	Single-rate	0,1300
	AB Lietuvos geležinkeliai	Single-rate	0,1300
LI	Telecom Liechtenstein AG	Single-rate	2,4700
LU	EPT	Single-rate	0,1350
LV	Lattelecom	Single-rate	0,0956
	Latvijas Mobilais Telefons	Single-rate	0,0956
	Baltcom	Single-rate	0,0956
	Telecom Baltija	Single-rate	0,0956
ME	Crnogorski Telekom	Single-rate	0,6500
	Mtel	Single-rate	0,6500
	Telenor	Single-rate	0,6500
	Telemach	Single-rate	0,6500
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

Country	Operator	Lowest Regulated Rate	WA in cents
	Solutions and Infrastructure Ltd (SIS)	Single-rate	0,0443
	Vanilla Telecoms Ltd	Single-rate	0,0443
NL	KPN	Single-rate	0,1390
	Ziggo	Single-rate	0,1390
NO	Telenor	Single-rate	0,0628
	NexGenTel	Single-rate	0,0628
	Get	Single-rate	0,0628
	Phonero	Single-rate	0,0628
	Phonect	Single-rate	0,0628
PL	Orange Polska S.A.	LRR	0,4810
	Orange Polska S.A.	2nd LRR	0,5713
	Orange Polska S.A.	3rd LRR	0,8411
	Netia	Single-rate	0,4810
	Multimedia Polska S.A.	Single-rate	0,4810
	Multimedia Polska Poludnie S.A.	Single-rate	0,5103
PT	MEO	Single-rate	0,0635
	NOS Group	Single-rate	0,0635
	Vodafone	Single-rate	0,0635
	Apax Group	Single-rate	0,0635
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	0,4823
	Telekom Srbija	2nd LRR	0,5670
	Telekom Srbija	3rd LRR	0,6347
	Orion telekom	Single-rate	0,5246
	Telenor	Single-rate	0,5246
	Serbia Broadband	Single-rate	0,5246
SE	TeliaSonera AB	LRR	0,0639
	TeliaSonera AB	2nd LRR	0,1036
SI	Telekom Slovenije	Single-rate	0,0876
	Telemach	Single-rate	0,0876
	T-2	Single-rate	0,0876
	Simobil	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	0,2661
	Türk Telekom	2nd LRR	0,3274
	Türk Telekom	3rd LRR	0,4289
	TTNet	Single-rate	0,6127
	Superonline	Single-rate	0,6127
	Turknet	Single-rate	0,6127
UK	BT	Single-rate	0,0369

Country	Operator	Lowest Regulated Rate	WA in cents
	TalkTalk	Single-rate	0,0369
	Sky	Single-rate	0,0369
	Virgin Media	Single-rate	0,0369
	Others	Single-rate	0,0369

Notes to table 3:

Incumbents are indicated first in the table.

AL: Starting from 01.01.2016 only one interconnection level is applied for termination of calls on all fixed network operators. There is no differentiation between Peak /Off -Peak FTRs. Not updated data for July 2018.

AT: Number of lines as of end Q1/18. Change in methodology of data collection leads to differences compared to the previous quarter.

BE: Number of lines reflects the situation at the 1st of January 2018 as the BIPT collects this data only once per year. The regulated FTR remains valid until the adoption of the new FTR market analysis.

BG:*As of 18.05.2018, Mobitel was renamed A1 Bulgaria. The applied fixed terminating rate is cost-oriented based on Pure Bu-LRIC model: 0,0015 BGN/minute and there is no differentiation between peak/off-peak or hierarchy levels.

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 (LRR) 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: No peak and off-peak separation of rates. Number of lines as at 30/06/2018.

CZ: Data regarding number of lines are as of 31th December 2017.

DE: No glide path regulation. FTR are valid from 01.01.2017 until 31.12.2018.

DK: We do not have traffic information per layer. Number of lines is of ultimo 2017.

HR: In Croatia, HT has only one interconnection level (regional), however, this doesn't mean that some operators can't be interconnected on national level but this will be subject to commercial agreements between operators.

IE: Operators can choose between a set per call and charge per minute rate and a charge per minute rate. Note that number of lines and market share data is based on operator provided data as of 31/12/2017.

LU: In Luxembourg, there is no layer distinction for regulation purposes.

LT: Subscribers as of 2017 IV Q

SK: Operators do not recognize peak and off peak traffic.

TK: In Turkey, there is no differentiation in fixed termination rates such as peak and off-peak. The number of lines specified above table for alternative network operators includes the number of

wholesale line rental and VoIP subscribers .Number of Lines can be given as total number of lines including layer 1, layer 2 and layer 3 termination points.

UK: BT is subject to an average price cap for the year that has to be no more than 0.0323ppm. BT is no longer free to charge different rates for different dayparts, so peak and off-peak prices are the same. All other CPs must set rates that are fair and reasonable rates, which are presumed to be symmetric to BT.

Annex 2 Average fixed termination revenue per country

Notes to figure 9

BG: No FTRs differentiation between peak/off-peak or interconnection levels. The traffic that is outside of the scope of regulation is not included in the questionnaire.

CH: This data has not been collected.

CZ: Revenues and volumes are in thousands of units (CZK and minutes).

DE: Revenues are not regulated in Germany and are therefore not available.

DK: The DBA do not collect revenues from termination.

FI: Data not available (not collected on detailed level)

HR: In Croatia, HT has only one interconnection level (regional), however, this doesn't mean that some operators can't be interconnected on national level but this will be subject to commercial agreements between operators.

HU: Not available.

LU: Revenues are total revenues (no IX layers apply) and they include revenues from traffic from abroad (international traffic). These revenues may include non-termination related revenues like revenues from the transport of calls.

ME: Data for National FTR are for calls originated from national (fixed and mobile) operators and from abroad. FTR for calls that are originated from abroad are not regulated and different from FTR for calls that originated from national operators.

NO: The FTR has been NOK 0,006 from 1st April 2016.

When calculating the average FTR based on revenue and minutes we got a higher TR. One reason may be that FTR revenue and/or FTR minutes also includes traffic terminated in non-geographical numbers. Price cap regulation is only imposed on geographical numbers. "

PT: Data not available by National/Regional/Local.

Total FTR minutes also includes international traffic originated outside EEA which is not subject to price control obligation. This is the reason that justifies average revenues per minute higher than the maximum regulated value for EEA traffic.

PL: Data not provided.

RS: Data provided are for 2017 and includes only national fixed-to-fixed and mobile-to-fixed calls. Revenue and traffic do not include self-supply and do not include calls when both the the fixed and the mobile network are owned and run by the same operator.

SI: Including international termination. The prices for incoming calls from Non-EU international networks are not regulated, therefore the average revenue per minute is higher than regulated prices. Self-supply is not included!

SK: The FTR value doesn't change during the reported period.

TR: Total FTR revenue is available on aggregate. Data for total FTR minutes exclude traffic from international origin that is terminated at Turk Telekom's network since it is available on aggregate. In fact, total traffic from international origin that is terminated at Turk Telekom's network is 320.823.364 minutes in 2017.

Annex 3 FTR regulatory cost accounting model implemented

Table 4

Country	COST ACCOUNTING MODEL
AL	Benchmark (Other)
AT	Pure BU LRIC
BE	FDC/FAC
BG	Pure BU LRIC
CH	BU LRAIC +
CY	Pure BU LRIC
CZ	Pure BU LRIC
DE	Benchmark (Pure BU LRIC)
DK	Pure BU LRIC
EE	Benchmark (Pure BU LRIC)
EL	Pure BU LRIC
ES	Pure BU LRIC
FI	FDC
FR	Pure BU LRIC
FYROM	TD 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
MT	Pure BU LRIC
NL	Pure BU LRIC
NO	Pure BU LRIC
PL	N/A
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	LRIC

Notes to table 4:

AL: There is no differentiation between Peak/Off-Peak FTRs

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"

CH: Source of the Swisscom-Tariffs:

https://www.swisscom.ch/dam/swisscom/de/ws/documents/D_IC-Dokumente/de_handbuch-preiseicv1-18.pdf, p.11 and https://www.swisscom.ch/dam/swisscom/de/ws/documents/D_IC-Dokumente/voip-ic/de_voip_ic_handbuch-preise2-2.pdf, p. 7.

CY: Final decisions regarding implementation of Pure BU-LRIC have been issued in September 2018 with retrospective effect from 1.1.2018

CZ: Data regarding number of lines are as of 31th December 2017.

DE: The calculation of rates is based on a pure LRIC cost model, adjusted by benchmarking with other European countries that use pure LRIC.

DK: We do not have traffic information per layer. Number of lines is of ultimo 2017.

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). Since EETT is planning to conduct a new market analysis and to make an updated model, the 2017 termination rate will also be applicable during 2018 until the adoption of the new decision.

FI: Market shares as of 1.1.2018. Volumes are confidential.

IE: Please note that ComReg Decision D12/12 set fixed termination rates at layer one (ie eircom'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 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>

FTRs will remain at the above rate until after a Market Analysis and corresponding Pricing Decision have been made. ComReg is planning consultations in Q3/4 2017 with Decision Notices in 2018.

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

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: 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 2018, 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 Telia Lietuva, 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)

The number of lines is considering the number of network termination points, NTP data of 1-1-2018.

ME: Current FTR are regulated according to the TD LRIC costing methodology. Incumbent operator Crnogorski Telekom had developed TD LRIC cost model, and NRA approved results every year. Other SMP operators apply symmetrical FTR.

FUROM: Data as of 31.03.2018

MT: Data reflects as at Q1 2018

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. It established a new maximum value for fixed termination rate that applies to the local and single transit interconnection levels; the price for double transit interconnection is subject to negotiation between operators.

Following an update to the model, by order of March 3rd 2017, on October 1st 2017 the FTR was set to 0.0635 €cents per minute.

RO: FTR applicable for both TDM and IP interconnection. IP interconnection regulated starting 2019.

RS: RATEL comments on 1.2. - Termination rates are as of 01/07/2018. Number of lines are as of 31/12/2017. Number of lines are collected by using ITU indicator i112 Fixed-telephone subscriptions which refers to the sum of active number of analogue fixed-telephone line, voice-over-IP (VoIP) subscriptions, fixed wireless local loop (WLL) subscriptions, ISDN voice-channel equivalents and fixed public payphones. Number of fixed telephone subscriptions over FWA networks and number of fixed subscriptions over mobile networks (CLL technology) are also included. Information on individual's number of lines by operator is confidential.

SE: A new cost model have been developed and has been notified with the EU-Commission.

SK: Ru has not used any glide path.

UK: Rates have been set on a BU LRIC basis since 01/01/2014

Annex 4 FTR symmetry

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

Table 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, the same single regulated termination rate applies 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 02.06.2017
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 Pol, then a transit for terminating at the other Pols should be paid. For IP interconnection the number of Pol 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 Pol for FTR. It is subject to commercial negotiation, as it was in the past
FI	Yes	In Finland there are no price caps on FTRs. Three biggest SMP-operators applies same prices (2.8 €cent/min). Rest of the SMP-operators price is 3.2 €cent/min.
FR	Yes	
FYROM	Yes	
HR	Yes	Symmetry in fixed network is prescribed for all operators as of the 01.01. 2013
HU	Yes	
IE	Yes	Please note that ComReg Decision D12/12 set fixed termination rates at layer one (i.e. eircom's primary). http://www.comreg.ie/fileupload/publications/ComReg12125.pdf
IS	Yes	
IT	Yes	

Country	Symmetry	Comments
LI	N/A	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, 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	Yes	
MT	Yes	Due to national characteristics interconnection is at layer 1. The FTR charge applicable to all those operators having an SMP in the wholesale fixed termination market is on a symmetrical basis
NL	Yes	Same FTR rate for all operators
NO	Yes	
PL	Partially	
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 cents per minute starting on 04.01.2017 and updated to 0,0635 eurocents per minute on October 1, 2017
RO	Yes	Symmetric FTRs irrespective of interconnection level
RS	Partially	Operators have different topology and different number of the levels of interconnection. Telekom Serbia have 3 levels of interconnection. Other operators have 1 level of interconnection
SE	Yes	
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	

Annex 5 Number of active fixed telephony lines and Market shares

Table 6

Country	Operator	Number of lines	Total number of lines	Market share
AL	Albtelecom	171.716	247.796	69,30%
	Abcom	12.234		4,94%
	Albanian Satellite Communications	43.318		17,48%
	Rest of operators	20.528		8,28%
AT	A1 Telekom Austria	1.905.281	3.097.893	61,50%
	Operator 2	503.272		16,25%
	Operator 3	222.303		7,18%
	Operator 4	186.612		6,02%
	Operator 5	61.786		1,99%
	Operator 6	56.949		1,84%
	Rest of operators	161.690		5,22%
BE	Proximus	2.352.987	4.251.564	55,34%
	Rest of operators	1.898.577		44,66%
BG	Bulgarian Telecommunication Company	Confidential	1.277.186	Confidential
	A1 Bulgaria*	Confidential		Confidential
	Telenor Bulgaria	Confidential		Confidential
	Rest of operators	62.926		4,93%
CH	Swisscom	N/A	N/A	N/A
CY	Cyta	217.488	311.350	69,85%
	Primetel	43.784		14,06%
	Cablenet	27.702		8,90%
	MTN	22.376		7,19%
CZ	Česká telekomunikační infrastruktura a.s.	Confidential	Confidential	Confidential
	UPC Česká republika, s.r.o.	Confidential		Confidential
	Vodafone Czech Republic a.s.	Confidential		Confidential
	T-Mobile Czech Republic a.s.	Confidential		Confidential
	IPEX a.s.	Confidential		Confidential
	České Radiokomunikace a.s.	Confidential		Confidential
	Rest of operators	Confidential		Confidential
DE	Telekom Deutschland GmbH	19.340.000	38.520.000	50,21%
	Rest of operators	19.180.000		49,79%
DK	TDC	435.258	587.221	74,12%
	Telia	81.785		13,93%

Country	Operator	Number of lines	Total number of lines	Market share
	Telenor	48.567		8,27%
	Rest of operators	21.611		3,68%
EE	Telia Eesti AS	294.098	347.335	84,67%
	STV	11.890		3,42%
	Starman	28.682		8,26%
	Elisa	12.665		3,65%
EL	OTE	2.646.878	4.756.694	55,65%
	FORTHNET	Confidential		Confidential
	VODAFONE	Confidential		Confidential
	WIND	Confidential		Confidential
ES	Telefónica de España	8.921.925	18.405.407	48,47%
	Vodafone - ONO	4.654.387		25,29%
	Orange	4.031.115		21,90%
	Rest of operators	797.980		4,34%
FI	DNA Oyj	Confidential	370.000	Confidential
	Elisa Oyj	Confidential		Confidential
	Telia Finland Oyj	Confidential		Confidential
	Rest of operators	Confidential		Confidential
FR		N/A	N/A	N/A
FYROM	Makedonski Telekom	209.039	366.436	57,05%
	one.VIP	117.461		32,05%
	Robi	24.946		6,81%
	Rest of operators	14.990		4,09%
HR	HT	Confidential	1.366.763	Confidential
	OPTIMA	Confidential		Confidential
	VIPnet	Confidential		Confidential
	Rest of operators	Confidential		Confidential
HU	Magyar Telekom	1.508.751	3.069.000	49,2%
	DIGI	701.597		22,9%
	UPC	609.208		19,9%
	Rest of operators	249.444		8,1%
IE	Eir	562.947	1.468.548	38,33%
	Virgin Media	356.311		24,26%
	Vodafone	211.538		14,40%
	Sky	187.392		12,76%
	Rest of operators	150.360		10,24%
IS *	Siminn	83,053	120,781	68.76%

Country	Operator	Number of lines	Total number of lines	Market share
	Vodafone	37,728		31.24%
IT	TIM	11.046.202	20.700.659	53,36%
	Wind Tre	2.658.557		12,84%
	Fastweb	2.618.691		12,65%
	Vodafone Italia	2.564.129		12,39%
	Rest of operators	1.813.080		8,76%
LI	Telecom Liechtenstein AG	23.700	23.700	100,00%
LT	Telia Lietuva, AB	392.449	442.131	88,76%
	UAB „CSC Telecom“	9.639		2,18%
	AB Lietuvos gelezinkeliai	4.930		1,12%
	Rest of operators	35.113		7,94%
LU	Post Telecom	192.200	275.500	69,76%
	Rest of operators	83.300		30,24%
LV	Lattelecom	Confidential	263.002	Confidential
	Latvijas Mobilais Telefons	Confidential		Confidential
	CSC TELECOM	11.825		4,50%
	D-COM	10.710		4,07%
	Rest of operators	48.498		18,44%
ME	Crnogorski Telekom	117.165	163.300	71,75%
	Mtel	33.326		20,41%
	Telenor	1.878		1,15%
	Telemach	10.931		6,69%
MT	Go plc	160.684	271.316	59,22%
	Melita plc	92.714		34,17%
	Vodafone Malta Ltd	13.799		5,09%
	Ozone	609		0,22%
	Vanilla Telecoms Ltd	3.510		1,29%
NL	N/A	N/A	N/A	N/A
NO	Telenor	430.662	677.490	63,57%
	NextGenTel	47.794		7,05%
	Get	45.167		6,67%
	Phonero	35.477		5,24%
	Rest of operators	118.390		17,47%
PL	Orange Polska S.A	Confidential	5.246.720	Confidential
	Netia S.A.	Confidential		Confidential

Country	Operator	Number of lines	Total number of lines	Market share
	Multimedia Polska S.A.	Confidential		Confidential
	Multimedia Polska Poludnie S.A.	Confidential		Confidential
	Rest of operators	Confidential		Confidential
PT	MEO	Confidential	4.996.072	45,56%
	NOS Group	Confidential		34,27%
	Vodafone	Confidential		16,00%
	Apax Group	Confidential		3,64%
	Rest of operators	Confidential		0,54%
RO	Telekom RC S.A.	Confidential	3.770.000	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	2.609.6017	86%
	Serbia Broadband	Confidential		11,8%
	Rest of operators	Confidential		2,2%
SE	TeliaSonera AB	1.713.480	2.622.159	65,35%
	Com Hem AB	319.781		12,20%
	Tele2 Sverige AB	11.899		0,45%
	Telenor Sverige AB	151.936		5,79%
	Telavox AB	82.533		3,15%
	Rest of operators	342.530		13,06%
SI	Telekom Slovenije	Confidential	Confidential	Confidential
	Telemach	Confidential		Confidential
	T-2	Confidential		Confidential
	A1 Slovenija	Confidential		Confidential
	Rest of operators	Confidential		Confidential
SK	Slovak Telekom, a. s.	Confidential	825.231	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	6.700.987	11.491.629	58,31%
	TTNet	3.013.593		26,22%
	Superonline	483.241		4,21%

Country	Operator	Number of lines	Total number of lines	Market share
	Turknet	329.077		2,86%
	Rest of operators	964.731		8,40%
UK	BT	Confidential	33.014.816	Confidential
	TalkTalk	Confidential		Confidential
	Sky	Confidential		Confidential
	Virgin Media	Confidential		Confidential
	Rest of operators	6.045.086		18,31%

*Not updated

Notes to table 6

AL: Starting from 01/01/2016 only one interconnection level is applied for termination of calls on all fixed network operators. Number of fixed lines as of 1.07.2018.

AT: Number of lines as of end Q1/18. Change in methodology of data collection leads to differences compared to the previous quarter.

BE: Number of lines reflects the situation at the 1st of January 2018 as the BIPT collects this data only once per year.

BG: As of 18.05.2018, Mobiltel was renamed A1 Bulgaria. The applied fixed terminating rate is cost-oriented based on Pure Bu-LRIC model: 0,0015 BGN/minute and there is no differentiation between peak/off-peak or hierarchy levels.

CY: No separation of rates to peak and off-peak. Number of lines as at 30/06/2018.

CZ: The total number of lines as of 31th December 2017 is available as the latest information.

DE: Number of lines is at end of year 2017 (estimate)

EL: Data as at 31/12/2017. The wholesale line rental lines are included in the incumbent's (OTE) lines.

IE: Operators can choose between a set per call and charge per minute rate or a charge per minute rate. Note that number of lines and market share data is based on operator provided data as of 31/12/2017. Some operators offer IP interconnection but this information is currently regarded as commercially sensitive.

FYROM: Data as of 31.03.2018

LT: Subscribers as of 2017 IV Q

ME: Data for number of lines are from 30th June 2018.

MT: Data reflects the position as at Q1 2018. Data includes the number of channels

NO: Number of lines are provided as of 01.01.2018. The total number of lines according to 1st of July 2018 will not be available before Q4 2018.

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

SI: Absolute number of lines per operator is confidential! Absolute number of all lines is confidential if this number is published with market shares of operators together! As all operator's systems are not adopted to reporting the data at such detailed level, all lines in case of VoIP are not taken into account.

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

TR: In Turkey, there is no differentiation In fixed termination rates such as peak and off-peak. The number of lines specified above table for alternative network operators includes the number of wholesale line rental and VoIP subscribers .Number of Lines can be given as total number of lines including layer 1, layer 2 and layer 3 termination points

UK: BT is subject to an average price cap for the year that has to be no more than 0.0323ppm. BT is no longer free to charge different rates for different dayparts, so peak and off-peak prices are the same. All other CPs must set rates that are fair and reasonable rates, which are presumed to be symmetric to BT. Figures highlighted in red are commercially sensitive and should not be published.

Annex 6 Average MTR per operator as of 1 July 2018

Table 7

Country	Operator	Average effective prices (eurocents)	Mobile Subscribers	Total mobile subscribers ¹⁰	Mkt Share
AL	Telekom Albania	1,1621	895.050	2.615.722	34,2%
	Vodafone Albania	1,1621	1.298.454		49,6%
	Albtelecom	1,1621	422.218		16,1%
AT	A1 Telekom Austria	0,8049	Confidential	9.669.424	Confidential
	T-Mobile Austria	0,8049	Confidential		Confidential
	Hutchison Drei Austria	0,8049	Confidential		Confidential
BE	Proximus	0,9900	Confidential	8.498.164	Confidential
	Orange	0,9900	Confidential		Confidential
	Telenet Group (ex-Base)	0,9900	Confidential		Confidential
	Telenet	0,9900	Confidential		Confidential
BG	A1 Bulgaria*	0,7158	Confidential	8.475.202	Confidential
	Telenor Bulgaria	0,7158	Confidential		Confidential
	BTC	0,7158	Confidential		Confidential
CH	Swisscom	2,5123	Confidential	9.033.519	Confidential
	Sunrise	3,3214	Confidential		Confidential
	Salt	3,3214	Confidential		Confidential
CY	MTN	0,9900	418.545	1.187.748	35,24%
	CABLENET	0,9900	11.853		1,00%
	CYTA	0,9900	641.285		53,99%
	PRIMETEL	0,9900	116.065		9,77%
CZ	T-Mobile Czech Republic a.s.	0,9688	Confidential	11.697.440	Confidential
	O2 Czech Republic a.s.	0,9688	Confidential		Confidential
	Vodafone Czech Republic a.s.	0,9688	Confidential		Confidential
	Nordic Telecom s.r.o.	0,9688	Confidential		Confidential
DE	Telekom Deutschland GmbH	1,0700	N/A	109.700.000	N/A
	Vodafone GmbH	1,0700	N/A		N/A
	Telefónica Germany GmbH & Co. OHG	1,0700	N/A		N/A
DK	TDC	0,6001	2.701.743	6.327.688	42,70%
	Telenor	0,6001	1.573.119		24,86%
	Telia	0,6001	1.077.503		17,03%
	3 (Hi3G)	0,6001	975.323		15,41%
EE	Telia Eesti AS	0,8300	778.083	1.904.425	40,86%
	Tele2 Eesti AS	0,8300	493.244		25,90%
	Elisa Eesti AS	0,8300	633.098		33,24%
EL	Cosmote	0,9580	Confidential	12.349.274	Confidential
	Vodafone	0,9580	Confidential		Confidential
	WIND	0,9580	Confidential		Confidential
	CYTA	0,9580	Confidential		Confidential

¹⁰ Mobile subscribers (active SIM cards) means both 2G, 3G and 4G subscribers of a Mobile Network Operator or Mobile Virtual Network Operators. An active subscriber of mobile telephony' means a subscriber of post-paid mobile telephony who has a valid contract, or a pre-paid subscriber who has made or received a call, sent an SMS or MMS or used data services at least once in the last 3 months. **M2M, M2P and data-only SIMs cards should be excluded.**"

Country	Operator	Average effective prices (eurocents)	Mobile Subscribers	Total mobile subscribers ¹⁰	Mkt Share
ES	TME	0,7000	15.792.644	48.009.560	32,89%
	Orange	0,7000	14.042.009		29,25%
	Vodafone	0,7000	12.891.159		26,85%
	Masmovil	0,7000	5.283.748		11,01%
FI	DNA Oyj	1,2500	Confidential	7.206.000	Confidential
	Elisa Oyj	1,2500	Confidential		Confidential
	Telia Finland Oyj	1,2500	Confidential		Confidential
	Älcom	1,2500	Confidential		Confidential
FR	Orange	0,7400		72.441.000	
	SFR	0,7400			
	Bouygues Telecom	0,7400			
	Free Mobile	0,7400			
	MVNOs	0,7400			
FYROM	Makedonski Telekom	1,0245	938.133	1.988.376	47,18%
	one.VIP	1,0245	979.961		49,28%
	Lycamobile	1,0245	70.282		3,53%
HR	HT	0,6353	Confidential	4.279.115	Confidential
	VIPnet	0,6353	Confidential		Confidential
	Tele2	0,6353	Confidential		Confidential
HU	T-Mobile	0,5391	Confidential	10.003.818	Confidential
	Telenor	0,5391	Confidential		Confidential
	Vodafone	0,5391	Confidential		Confidential
	UPC	0,5391	Confidential		Confidential
	Netfone	0,5391	Confidential		Confidential
	Tarr	0,5391	Confidential		Confidential
IE	Vodafone	0,7900	1.783.741	4.735.406	37,67%
	Three Ireland Group	0,7900	1.578.185		33,33%
	Eircom Group Mobile	0,7900	980.024		20,70%
	Tesco Mobile	0,7900	393.456		8,31%
IS	Siminn	0,7856	131.117	397.890	32,95%
	Vodafone	0,7856	108.550		27,28%
	Nova	0,7856	141.471		35,56%
	365/Tal	0,7856	16.752		4,21%
IT	WindTre	0,9800	29.540.488	79.739.269	37,05%
	Telecom Italia	0,9800	24.019.862		30,12%
	Vodafone	0,9800	22.433.117		28,13%
	PosteMobile	0,9800	3.745.802		4,70%
LI	Telecom Liechtenstein AG	2,4698	Confidential	13.836	Confidential
	Swisscom (Schweiz) AG	2,4698	Confidential		Confidential
	Salt (Liechtenstein) AG	2,4698	Confidential		Confidential
LT	Tele2	0,9400	Confidential	4.447.047	41,7%
	Telia Lietuva, AB	0,9400	Confidential		30,7%
	Bite Lietuva	0,9400	Confidential		24,2%
LU	Post Télécom	0,8900	Confidential	741.500	Confidential
	Tango	0,8900	Confidential		Confidential
	Orange	0,8900	Confidential		Confidential
	Bite Latvija	0,8868	545.597	2.425.594	22,49%

Country	Operator	Average effective prices (eurocents)	Mobile Subscribers	Total mobile subscribers ¹⁰	Mkt Share
LV	Latvijas Mobilais Telefons	0,8868	Confidential		Confidential
	Tele2	0,8868	942.234		38,85%
	Zetcom	0,8868	Confidential		Confidential
ME	Telenor	0,8500	388.371	1.071.987	36,23%
	Crnogorski Telekom	0,8500	359.462		33,53%
	Mtel	0,8500	324.154		30,24%
MT	Go plc	0,4045	223.931	606.333	36,93%
	Melita plc	0,4045	115.090		18,98%
	Vodafone	0,4045	258.620		42,65%
	Redtouch fone	0,4045	8.692		1,43%
NL	KPN	0,5810	6.769.000	16.355.000	41,39%
	T-Mobile	0,5810	3.755.000		22,96%
	Vodafone	0,5810	4.611.000		28,19%
	Tele2	0,5810	1.220.000		7,46%
NO	Telenor	0,5653	2.823.612	5 724 801	49,32%
	Telia	0,5653	2.135.511		37,30%
	ICE	0,5653	389.718		6,81%
	Rest of operators	0,5653	375.960		6,57%
PL	Orange Polska S.A.	1,0065	Confidential	50.458.196	Confidential
	Polkomtel sp. z o.o.	1,0065	Confidential		Confidential
	P4 sp. z o.o.	1,0065	Confidential		Confidential
	T-Mobile Polska S.A.	1,0065	Confidential		Confidential
PT	MEO	0,7500	Confidential	11.417.593	Confidential
	NOS	0,7500	Confidential		Confidential
	Vodafone	0,7500	Confidential		Confidential
RO	VODAFONE ROMANIA S.A.	0,8400	Confidential	22.200.000	Confidential
	ORANGE ROMANIA S.A.	0,8400	Confidential		Confidential
	TELEKOM RMC S.A.	0,8400	Confidential		Confidential
	RCS & RDS S.A.	0,8400	Confidential		Confidential
	LycaMobile	0,8400	Confidential		Confidential
RS	Telekom Srbija - MTS	1,2101	Confidential	8.621.771	45,7%
	Telenor	1,2101	Confidential		31,1%
	Vip mobile	1,2101	Confidential		23,2%
SE	Telia Company	0,5653	4.644.044	12.268.170	37,85%
	Tele2	0,5653	3.689.704		30,08%
	Telenor	0,5653	2.216.986		18,07%
	Hi3G	0,5653	1.450.492		11,82%
	Lycamobile	0,5653	167.404		1,36%
	Vecton Mobile	0,5653	99.540		0,81%
SI	Telekom Slovenije	1,1400	Confidential	2.350.801	Confidential
	A1	1,1400	Confidential		Confidential
	Telemach	1,1400	Confidential		Confidential
	T-2	1,1400	Confidential		Confidential
SK	Orange Slovensko, a s.	1,2260	Confidential	6.256.876	Confidential
	Slovak Telekom, a. s.	1,2260	Confidential		Confidential
	O2 Slovakia, s. r. o.	1,2260	Confidential		Confidential

Country	Operator	Average effective prices (eurocents)	Mobile Subscribers	Total mobile subscribers ¹⁰	Mkt Share
	Swan Mobile, a. s.	1,2260	Confidential		Confidential
TR	Turkcell	0,4786	32.408.146	74.631.432	43,42%
	Vodafone	0,4940	23.248.967		31,15%
	Avea	0,5667	18.974.319		25,42%
UK	EE	0,5650	Confidential	78.502.620	Confidential
	Telefonica	0,5650	Confidential		Confidential
	Vodafone	0,5650	Confidential		Confidential
	H3G	0,5650	Confidential		Confidential

Notes to Table 7

BG: *As of 18.05.2018, Mobiltel was renamed A1 Bulgaria. Individual data on number of subscribers/M2M SIM Cards by operators is confidential. M2M SIM Cards are not included in the figure of total mobile subscribers.

CH: Subscriber base as of 30.06.2018.

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. The total number of SIM cards as of 31st December 2017 is available as the latest information.

DE: Current MTR (1,07 €cent) are valid until 30.11.2018. 0,95 €cent will be valid from 01.12.2018.

The total number of active subscribers is not available by individual operator. Data are as of 4th quarter 2017.

DK: Total Subscribers is derived as of ultimo H2 2017. We used to regulate Mundio Mobile (Vectone) but they have ceased operations in Denmark as of June 2018. Mundio is therefore left out of this data-collection.

EL: Subscribers' data as at 30/06/2018

FI: "Subscriber volumes per operator are confidential. Subscriber volumes per 1.1.2018

Subscriber volumes depict the number of subscriptions not SIM cards. Subscriber volumes include all subscriptions other than data-only subscriptions. SIM card volumes are very close to the subscription number in Finland. FICORA does not collect detailed information of SIM cards (e.g. data-only SIM cards) and therefore the figure would not have reflected the asked figures. Number of M2M SIM cards is collected and is reported in the figures."

HR: Data for Q1 2018.

IE: Virgin Mobile is not currently subject to MTR regulation.

IS: Number of mobile subscribers as of 31/12/2017, since it was not any reply from NRA for July.

IT: Subscribers refer to full year 2017, which are the last public data available. Rates for 01/07/2018 are not yet adopted with a final decision, since review of mobile termination market is ongoing.

LT: Subscribers at 2018 IQ.

LU: data as of 31/12/2017

Règlement ILR/T17/4 du 9 juin 2017 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.

ME: No data for M2M SIM cards. 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.

MT: Data Reflects as at Q1 2018.

NL: The most recent data we have is of 31/12/2017

NO: Number of subscribers are provided per 31 December 2017. The total number of subscribers per 1 July 2018 will be available in Q4 2018.

PL: The number of subscribers as of 31.12.2017.

PT: Please note that from the 1st to the 11th of July the regulated MTR was 0.75 €cents per minute. The MTR of 0.42 €cents per minute came into effect on July 12th 2018.

RO: Transitory MTR 0.84eurocents/min, starting May 1st, 2018, based on benchmark of MTRs applied by member states that developed pure LRIC models. The transitory MTR will be in force until new pure LRIC model developed by ANCOM.

RS: Information on individual's number of subscribers by operator is confidential. Number of subscribers are as of 31/12/2017 and include both MNO and MVNO operators' subscribers. Numbers of subscribers are collected by using ITU indicator i271 which excludes data cards and USB modems. 2M are collected by using ITU indicator i271m2m with the following definition - M2M mobile-network subscriptions refers to the number of mobile-cellular machine-to-machine subscriptions that are assigned for use in machines and devices (cars, smart meters, consumer electronics) for the exchange of data between networked devices, and are not part of a consumer subscription. For instance, SIM-cards in personal navigation devices, smart meters, trains and automobiles should be included. Mobile dongles and tablet subscriptions should be excluded.)

SE: All Data per 2017-12-31.

Annex 7 Average mobile termination revenue per minute per country

Notes to figure 17

AL: Total MTR revenue and minutes include termination of national and international calls. Please note that MTR for international calls is not regulated and the reported figures for total MTR revenue and minutes in previous reports included only national calls.

BG: The Indicator "Total MTR revenue" includes revenues from traffic originated from national fixed networks and terminated in mobile networks during 2017. Excluded are fixed-to-mobile calls when both the fixed and the mobile network are owned and run by the same operator. The Indicator "Total MTR minutes" includes traffic originated in national fixed networks and terminated in mobiles networks during 2017. Excluded are fixed-to-mobile calls when both the fixed and the mobile network are owned and run by the same operator. No MTRs peak/off-peak differentiation

CH: The data refers to the whole year 2017. In part it includes internationally originated traffic.

DE: Total MTR minutes = prognosis for end of year 2017. No revenue data available since BNetzA does not regulate revenue

IE: This includes termination of call minutes on net, call minutes handed over from domestic mobile operator, domestic fixed operator and calls handed over from foreign network operators (for all of 2017)

LU: Revenues are total revenues and they include revenues from traffic from abroad (international traffic). These revenues may include non-termination related revenues like revenues from the transport of calls.

ME: Data are for calls originated from national operators (fixed and mobile) and from abroad. MTR for calls that are originated from abroad are not regulated, and different from MTR for call that are originated from national operators.

MT: Data reflects as at Q1 2018

PT: Total MTR minutes also includes international traffic terminated in mobile operators of which traffic originated outside EEA is not subject to price control obligation. It is also noteworthy that the maximum regulated MTR changed mid-year, decreasing around 40%. These are the reasons that justify average revenues per minute higher than the current maximum regulated value for EEA traffic.

RS: Data provided are for the whole 2017 and includes only national fixed-to-mobile calls. Revenue and traffic do not include fixed-to-mobile calls when both the fixed and the mobile network are owned and run by the same operator.

SI: Including international termination. The prices for incoming calls from Non-EU international networks are not regulated, therefore the average revenue per minute is higher than regulated prices. Self-supply is not included!

Annex 8 Regulatory model implemented to calculate MTRs

Table 8

July 18	COST ACCOUNTING MODEL			Period 1 - From 01/07/2018 until 31/12/2018	Period 2 - From 01/01/2019 until 30/06/2019	Period 3 - From 01/07/2019 until 31/12/2019	Period 4 - From 01/01/2020 until 30/06/2020	Period 5 - From 01/07/2020 until 31/12/2020
	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?					
AL	Benchmark BU-LRIC	adopted	1.12.2014	1,1621	0,9579	0,8716		
AT	Pure BU-LRIC	adopted		0,8049	0,8049	0,8049		
BE	Pure BU-LRIC	adopted	1.1.2013	0,9900	0,9900	0,9900	0,9900	0,9900
BG	Pure BU-LRIC	adopted	1.12.2016	0,7158	0,7158	0,7158	0,7158	0,7158
CH		not regulated						
CY	Benchmarking	adopted		0,9900	0,9900			
CZ	Pure BU-LRIC	adopted	1.7.2013	0,9688				
DE	Pure BU-LRIC	adopted	1.12.2016	1,0700	0,9500	0,9500		
DK	Pure BU-LRIC	adopted	1.1.13	0,6001				
EE	Benchmark BU-LRIC	adopted	26.5.2016	0,8300	0,8300			
EL	Pure BU-LRIC	adopted	1.1.2013	0,9580	0,9460	0,9460	0,9460	0,9460
ES	Pure BU-LRIC	adopted	5.10.2012	0,7000	0,6700	0,6700	0,6400	
FI	other (FDC/FAC)	adopted		1,2500	0,9300	0,9300	0,8900	0,8900
FR	Pure BU-LRIC	adopted	1.1.2013	0,7400				
FYROM	TD LRIC	adopted	01.12.2016	0,0249	1.0249	1.0249	1.0249	
HR	Pure BU-LRIC	adopted		0,6353				
HU	Pure BU-LRIC	adopted	1.4.2015	0,5488	0,5488	not decided	not decided	not decided
IE	Pure BU-LRIC	adopted	1.9.2016	0,7900				
IS	Benchmark BU-LRIC	notified		0,7855				

July 18	COST ACCOUNTING MODEL			Period 1 - From 01/07/2018 until 31/12/2018	Period 2 - From 01/01/2019 until 30/06/2019	Period 3 - From 01/07/2019 until 31/12/2019	Period 4 - From 01/01/2020 until 30/06/2020	Period 5 - From 01/07/2020 until 31/12/2020
	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?					
IT	Pure BU-LRIC	national consultation	1.7.2013	0,9800	0,9500	0,9500	0,9200	0,9200
LI	Benchmarking	adopted		2,4698				
LT	Benchmark BU-LRIC	adopted	1.4.2016	0,9400				
LU	Pure BU-LRIC	adopted	9.6.2017	0,8900	0,8900	0,8900		
LV	Benchmark BU-LRIC	adopted	26.4.2017	0,8868	0,8868	0,8868	0,8868	0,8868
ME	OTHER _ TD LRIC	adopted		0,8500				
MT	Pure BU-LRIC	adopted	1.4.2014	0,4045	0,4045			
NL	Pure BU-LRIC	adopted	12.7.2017	0,5810	0,5810	0,5810	0,5810	0,5810
NO	Pure BU-LRIC	adopted	1.7.2015	0,5653	0,4502	0,4502	0,3350	0,3350
PL	Pure BU-LRIC	adopted	1.7.2013	1,0065	1,0065	1,0065	1,0065	1,0065
PT	Pure BU-LRIC	adopted	31.12.2012	0,4200	0,4200	see comment	see comment	see comment
RO	Benchmark BU-LRIC	adopted	1.4.2014	0,8400				
RS	Benchmarking			1,2101				
SE	Pure BU-LRIC	adopted	1.7.2013	0,5653	0,5653	0,5653	0,5653	0,5653
SI	Pure BU-LRIC	adopted	1.9.2014	1,1400	X	X	X	
SK	Pure BU-LRIC	adopted	1.8.2013	1,2260				
TR	CONFIDENTIAL	CONFIDENTIAL						
UK	Pure BU-LRIC	adopted (until 30.06.2018) / national consultation (from 01.07.2018)	1.4.2013	0,5650	0,5650	0,5581	0,5521	0,5462

Notes to Table 8

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 - BGN/min 0.014

from 01/01/2017 - BGN/min 0.014

from 01/01/2018 - BGN/min 0.014

from 01/01/2019 - BGN/min 0.014

from 01/01/2020 - BGN/min 0.014

No MTRs peak/off-peak differentiation.

CH: MTRs are not regulated in 2018.

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

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 after 2018 is undecided.

EL: The rates included in the table are derived from the model that EETT has developed during 2012. Following EC's comment on the 2017 EETT's notification of Market 2, EETT is currently in the process of updating the 2012 pure LRIC bottom-up model and will adapt the MTRs accordingly.

FI: FICORA issued 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. Price caps are valid until 1.12.2018. 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.

DNA, Elisa and Telia have commercially agreed on new termination rates. New termination rates will be as follows:

1.12.2018 MTRs will be 0,93€cent/minute

1.12.2019 MTRs will be 0,89€cent/minute

1.12.2020 MTRs will be 0,82€cent/minute

Ålcom will follow the same glide path

FYROM: Values added during April validation round

IS: There was not any reply from NRA for July.

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.

Effective MTR as of June 1, 2017 is 2.9 CHF-cents per minute.

LV: Latvian NRA does not 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.

MT: Data Reflects as at Q1 2018.

NO: Number of subscribers are provided per 31 December 2017. The total number of subscribers per 1 July 2018 will be available in Q4 2018.

PL: Subscribers' data as of 31.12.2017.

PT: In June 21, 2018, ANACOM approved a new decision establishing the new MTR also in accordance with the EC Recommendation on Termination rates - BU-LRIC. This new MTR of 0.42 €cents per minute came into effect on July 12th 2018, so from the 1st to the 11th of July the regulated MTR corresponded to the previous value of 0.75 €cents per minute. According to this decision, in 01.07.2019 and in 01.07.2020 the MTRs will be updated on the basis of existing and foreseen inflation data.

RO: Transitory MTR 0.84eurocents/minute, starting May 1st, 2018, based on benchmark of MTRs applied by member states that developed Pure BU LRIC models. The transitory MTR will be in force until new pure LRIC model developed by ANCOM.

RS: Price of 1,43 RSD is effective from 01/01/2018, until new RATEL's definition. Presented price is national MTR which is subject of regulation.

SE: MTRs are currently into force until new prices are adopted.

SI: New market analysis is planned in 2018. MTR price will be calculated in 2018.

SK: RU does not apply any glide path. RU is in process of preparing a new price 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 in certain times when it is needed.

UK: Future rates are dependent on the level of inflation. For the above we have assumed an inflation rate of 2% per annum from 2017/18 to 2020/21. All prices are nominal.

Annex 9 SMS TR per operator as of 1 July 2018

Table 9

Country	Operator	SMS TR (eurocents)		Subscribers ¹¹		Market share
		per operator	per country	per operator	Total per country	
AL	Telekom Albania	0,7852	0,7852	895.050	2.745.843	36,25%
	Vodafone Albania	0,7852		1.298.454		48,06%
	Albtelecom	0,7852		422.218		15,69%
AT	A1Telekom Austria	N/A	3,1100	Confidential	11.907.550	Confidential
	T-Mobile Austria					Confidential
	Hutchison Drei Austria					Confidential
BE	Proximus	4,9600	4,9600	5.460.467	12.735.875	42,87%
	Orange	4,9600		3.595.459		28,23%
	Telenet Group (ex-Base)	4,9600		1.463.275		11,49%
	Telenet	4,9600		2.216.674		17,40%
BG	A1 Bulgaria	Confidential	Confidential	Confidential	9.431.783	Confidential
	Telenor Bulgaria					
	BTC					
CH	Swisscom	Confidential	3,9789	Confidential	9.810.793	Confidential
	Sunrise					
	Salt					
CY	MTN	0,6800	0,5439	427.865	1.096.720	35,24%
	CABLENET	0,7300		11.853		1,00%
	CYTA	0,5500		657.002		53,99%
	PRIMETEL	0,5500		118.889		9,77%
CZ	T-Mobile Czech Republic a.s.	Confidential				
	O2 Czech Republic a.s.					
	Vodafone Czech Republic a.s.					
	Nordic Telecom s.r.o.					
DE	Telekom Deutschland GmbH	N/A	N/A	N/A	127.300.000	N/A
	Vodafone GmbH			N/A		N/A

¹¹ Including M2M SIM cards for the majority of countries. Numbers of subscribers of DE, FR, ME, RO, RS and UK do not include M2M SIM cards. For DE, FR, PL and RS no M2M SIM card data per operator was provided. For ME and RO no M2M SMS card data was provided.

Country	Operator	SMS TR (eurocents)		Subscribers ¹¹		Market share
		per operator	per country	per operator	Total per country	
	Telefónica Germany GmbH & Co. OHG			N/A		N/A
DK	TDC	N/A	N/A	3.202.707	7.155.339	44,76%
	Telenor			1.899.806		26,55%
	Telia			1.077.503		15,06%
	3 (Hi3G)			975.323		13,63%
EE	Telia Eesti AS	2,6000	2,2861	807.895	2.171.072	37,21%
	Elisa Eesti AS	2,1000		723.497		33,32%
	Tele2 Eesti AS	2,1000		639.680		29,46%
EL	Cosmote	Confidential	Confidential	Confidential	12.702.915	Confidential
	Vodafone					
	WIND					
	CYTA					
ES	TME	2,5623	2,6365	17.876.384	53.166.305	33,62%
	Orange	2,3684		15.745.204		29,62%
	Vodafone	3,0000		14.260.969		26,82%
	Masmovil	2,7051		5.283.748		9,94%
FI	DNA Oyj	N/A	N/A	Confidential	8.436.300	Confidential
	Elisa Oyj					
	Telia Finland Oyj					
	Ålcom					
FR	Orange	1,0000	1,0000	N/A	88.122.000	N/A
	SFR	1,0000				
	Bouygues Telecom	1,0000				
	Free Mobile	1,0000				
FYROM	Makedonski Telekom	0,4867	0,4867	938.133	1.988.376	47,18%
	one.VIP	0,4867		979.961		49,28%
	Lycamobile	0,4867		70.282		3,53%
HR	HT	N/A	N/A	Confidential	4.447.969	Confidential
	VIPnet	N/A		Confidential		Confidential
	Tele2	N/A		Confidential		Confidential
HU	T-Mobile	4,5196	4,5196	Confidential	Confidential	Confidential
	Telenor	4,5196		Confidential		Confidential
	Vodafone	4,5196		Confidential		Confidential
	UPC	4,5196		Confidential		Confidential

Country	Operator	SMS TR (eurocents)		Subscribers ¹¹		Market share
		per operator	per country	per operator	Total per country	
	Netfone	4,5196		Confidential		Confidential
	Tarr	4,5196		Confidential		Confidential
IE	Vodafone	3,1700	3,1700	2.241.527	5.666.212	36,40%
	Three Ireland Group	3,1700		2.027.177		32,21%
	eircom Group mobile	3,1700		1.004.052		20,00%
	Tesco Mobile	3,1700		393.456		8,03%
IS*	Siminn	3,3460	3,3460	Confidential	424,495	Confidential
	Vodafone	3,3460				
	Nova	3,3460				
IT	Wind Tre	Confidential	3,1207	31.240.488	96.011.873	32,54%
	TIM	Confidential		30.754.626		32,03%
	Vodafone	Confidential		30.240.108		31,50%
	Iliad	Confidential		0		0,00%
	Poste Mobile	Confidential		3.776.651		3,93%
LI	Telecom Liechtenstein AG	Confidential	4,7682	Confidential	13.836	Confidential
	Swisscom (Schweiz) AG					
	Salt (Liechtenstein) AG					
LT	Tele2	0,7240	0,9081	1.852.394	4.721.833	41,7%
	Telia Lietuva, AB	0,7240		1.363.307		30,7%
	Bite Lietuva	1,4480		1.077.758		24,2%
LU	Post Télécom	N/A	N/A	409.100	831.100	49,22%
	Tango			277.400		33,38%
	Orange			144.600		17,40%
LV	Bite Latvija	2,1300	2,1300	573.945	2.764.459	20,76%
	Latvijas Mobilais Telefons	2,1300		Confidential		Confidential
	Tele2	2,1300		947.603		34,28%
	ZetCOM	2,1300		Confidential		Confidential
ME	Telenor	1,0000	1,0000	388.371	1.071.987	36,23%
	Crnogorski Telekom	1,0000		359.462		33,53%
	Mtel	1,0000		324.154		30,24%
MT	Go plc	2,4300	2,1654	234.145	618.879	37,83%
	Melita plc	1,7800		115.090		18,60%
	Vodafone	2,1700		260.952		42,17%

Country	Operator	SMS TR (eurocents)		Subscribers ¹¹		Market share
		per operator	per country	per operator	Total per country	
	Redtouch fone	2,1700		8.692		1,40%
NL	KPN	N/A	N/A	10.402.000	20.445.000	50,88%
	T-Mobile			3.850.000		18,83%
	Vodafone			4.973.000		24,32%
	Tele2			1.220.000		5,97%
NO	Telenor	3,6641	3,6641	4.028.215	7.304.514	55,15%
	Telia	3,6641		2.201.228		30,14%
	ICE	3,6641		392.382		5,37%
	Rest of operators	3,6641		682.689		9,35%
PL	Orange Polska S.A.	1,1863	1,1863	Confidential	53.260.675	Confidential
	Polkomtel sp. z o.o.	1,1863		Confidential		Confidential
	P4 sp. z o.o.	1,1863		Confidential		Confidential
	T-Mobile Polska S.A.	1,1863		Confidential		Confidential
PT	MEO	Confidential	0,8300	Confidential	12.471.438	Confidential
	NOS					Confidential
	VODAFONE					Confidential
RO	VODAFONE ROMANIA S.A.	Confidential	2,3000	Confidential	22.200.000	Confidential
	ORANGE ROMANIA S.A.	Confidential				Confidential
	TELEKOM RMC S.A.	Confidential				Confidential
	RCS & RDS S.A.	Confidential				Confidential
	LycaMobile	Confidential				Confidential
RS	Telekom Srbija - MTS	1,6924	1,6924	N/A	8.871.326	N/A
	Telenor	1,6924				
	VIP mobile	1,6924				
SE	Telia Company	N/A	N/A	4.644.992	12.279.024	37,83%
	Tele2			3.690.424		30,05%
	Telenor			2.226.172		18,13%
	Hi3G			1.450.492		11,81%
	Lycamobile			167.404		1,36%
	Vecton Mobile			99.540		0,81%
SI	Telekom Slovenije	Bill & Keep	Bill & Keep	1.100.525	2.419.506	45,49%
	A1 Slovenija			719.785		29,75%
	Telemach			478.771		19,79%
	T-2			120.425		4,98%
SK	Orange Slovensko, a.s.	2,5000	2,5000	2.304.253	6.973.736	33,04%

Country	Operator	SMS TR (eurocents)		Subscribers ¹¹		Market share
		per operator	per country	per operator	Total per country	
	Slovak Telekom, a.s.	2,5000		2.237.188		32,08%
	O2 Slovakia, s.r.o.	2,5000		1.953.642		28,01%
	SWAN Mobile a.s.	2,5000		478.653		6,86%
TR	Turkcell	0.1091	0,1117	34.797.437	79.538.960	43,75%
	Vodafone	0.1091		24.525.022		30,83%
	Avea	0.1193		20.216.501		25,42%
UK	BT/EE	Confidential	1,9476	Confidential	78,502,620	Confidential
	Telefonica					
	Vodafone					
	H3G					

*Not updated

Notes to Table 9

For notes concerning subscriber numbers see Notes to Table 7.

AL: Number of mobile subscribers as of 1.07.2018. Number of M2M SIM cards as of 1.01.2018

BG: As of 18.05.2018, Mobiltel was renamed A1 Bulgaria. Individual data on number of subscribers/M2M SIM Cards by operators is confidential.

CY: SMS Termination is not regulated and it is based on company agreements between operators

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. The total number of SIM cards as of 31th December 2017 is available as the latest information.

DE, DK, FI, HR, IS, LU: SMS call termination rates are not regulated.

DK: Total Subscribers is derived as of ultimo H2 2017. We used to regulate Mundio Mobile (Vectone) but they have ceased operations in Denmark as of June 2018. Mundio is therefore left out of this data-collection.

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

IT: Iliad entered in the market in July 2018. Therefore, we included Iliad in the table in order to provide a complete picture of mobile Italian market in July 2018, although we are not able to provide reliable data about Iliad's subscribers.

ME: Current SMS termination rates are applied from 01.07.2017. Before that SMS termination rates was 1.5 eurocent per SMS. SMS termination rates are valid only for termination of SMS's that originated from national operators.

NL: ACM does not collect data on SMS TR.

PL: The number of subscribers as of 31.12.2017.

NO: Number of subscribers are provided per 31 December 2017. The total number of subscribers per 1 July 2018 will be available in Q4 2018.

RS: Number of subscribers are as of 31/12/2017 and include both MNO and MVNO operators' subscribers. Numbers of subscribers are collected by using ITU indicator i271 which excludes data cards and USB modems. M2M are collected by using ITU indicator i271m2m with the following definition - M2M mobile-network subscriptions refers to the number of mobile-cellular machine-to-machine subscriptions that are assigned for use in machines and devices (cars, smart meters, consumer electronics) for the exchange of data between networked devices, and are not part of a consumer subscription. For instance, SIM-cards in personal navigation devices, smart meters, trains and automobiles should be included.

SE: We currently do not apply any termination rates for SMS services.

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

SK: 0 - 100 000 sms/month = 0,0284 EUR; 100 001 - 500 000 sms/month = 0,0261 EUR; 500 001 and more sms/month = 0,0250 EUR. Termination rates continue to vary with respect to terminated traffic volumes. All operators meet requirement for EUR 0.0250 rate.

Annex 10 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
FYROM	the former Yugoslav Republic of Macedonia
HR	Croatia
HU	Hungary
IE	Ireland
IS	Iceland
IT	Italy
LI	Liechtenstein
LT	Lithuania
LV	Latvia
LU	Luxembourg
ME	Montenegro
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	127,35
BG	1,96
CH	1,17
CZ	25,60
DK	7,45
FYROM	61,50
HR	7,40
HU	317,20
IS	123,48
LI	1,17
NO	9,55
PL	4,26
RO	4,65
RS	118,17
SE	10,33
TR	5,22
UK	0,88

¹² ECB website, <https://sdw.ecb.europa.eu/browse.do?node=9691296>

Annex 11 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
FDC	Fully Distributed Cost