

Termination rates at European level

30 June 2021

09 December 2021

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1. Executive Summary

This document is an updated version of the benchmark of fixed and mobile termination rates (TRs, hereafter) across Europe prepared by the BEREC Office in cooperation with the BEREC Statistics and Indicators Working Group. Fixed and mobile termination services in Europe have been subject to price regulation since many years now. The report aims to offer a picture of the regulated rates for fixed and mobile interconnection services in Europe, as well as their evolution over time.

The 2014 European Commission Recommendation on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation (Recommendation 2014/710/EU) identified, among others, the following two markets as relevant:

- wholesale call termination on individual public telephone networks provided at a fixed location (market 1);
- wholesale voice call termination on individual mobile networks (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.

According to the provisions of Article 75 of the EU Directive 2018/1972 establishing the European Electronic Communications Code, on the 22nd of April 2021, the Delegated Regulation (EU) 2021/654 setting a single maximum Union-wide mobile voice termination rate and a single maximum Union-wide fixed voice termination rate¹ was adopted, to be applied directly uniformly across the EU Member States. The Eurorates started applying from the first of July 2021. In the light of this approach, the latest European Commission Recommendation (EU) 2020/2245 on relevant markets does not list anymore the wholesale markets for the provision of fixed and mobile voice calls termination services as susceptible to ex ante regulation².

However, taking due account of the implementation of the provisions of the Delegated Regulation, which temporarily allow for differences in national rates in some cases, and the relevance of regulation of the termination rates in the non-EU countries/participants, BEREC considers that in 2021 it is still important to keep monitoring the evolution of termination rates throughout Europe. In order to do so, BEREC will keep collecting the data for the TRs valid as of 31st December 2021 and will decide regarding the way in which the data will be put to use when delivering the BEREC Report on the monitoring of the termination rates for mobile and fixed voice calls, expected by the second quarter of 2022.

¹Commission Delegated Regulation (EU) 2021/654: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32021R0654>

²The main competition problem in the market (i.e. the ability of terminating operators to set excessive termination charges) is already addressed by setting the maximum EU-wide termination rates, together with the necessary adjustments, in certain cases. Thus, these two markets would fail the three criteria test.

The present overview of TRs is based upon the results of a request for information sent to all NRAs in July 2021, referring – if not differently indicated – to data as of 30 June 2021. This is, just before the Eurorates started applying. It includes rates from the thirty seven (37) BEREC participants³, for which NRAs provided responses to the request.

As of 30 June 2021, the situation regarding TRs in Europe can be briefly described as follows (see also Figures 1-3):

- The simple average of the lowest regulated fixed termination rates (hereafter FTRs) of incumbents at the European level (all 37 countries/participants Avg (S)) stands at 0.2427 eurocents per minute.
- The simple average of the lowest regulated FTRs of European Union incumbents (only EU member states, Avg EU27(S)) stands at 0.1970 eurocents per minute.
- The simple average of mobile termination rates (hereafter MTRs) at the European level (all 37 countries/participants, Avg (S)) stands at 0.7442 eurocents per minute, whereas the weighted average⁴ (Avg (W)) at European level is 0.6952 eurocents per minute.
- The simple average of MTRs at the EU level (only EU member states, EU Avg (S)) stands at 0.6706 eurocents per minute, whereas the weighted average at EU level (EU Avg (W)) is 0.7170 eurocents per minute.
- The simple average of SMS TR at the European level is 2.2121 eurocents per SMS.
- Since not all EU member states report their SMS TRs, no averages at the EU level are calculated.

For non-EUR countries/participants, the average exchange rate for the second quarter of the year (Q2 2021) was used for the calculation of FTRs, MTRs and SMS TRs. The exchange rates used are reported in [Annex 10](#).

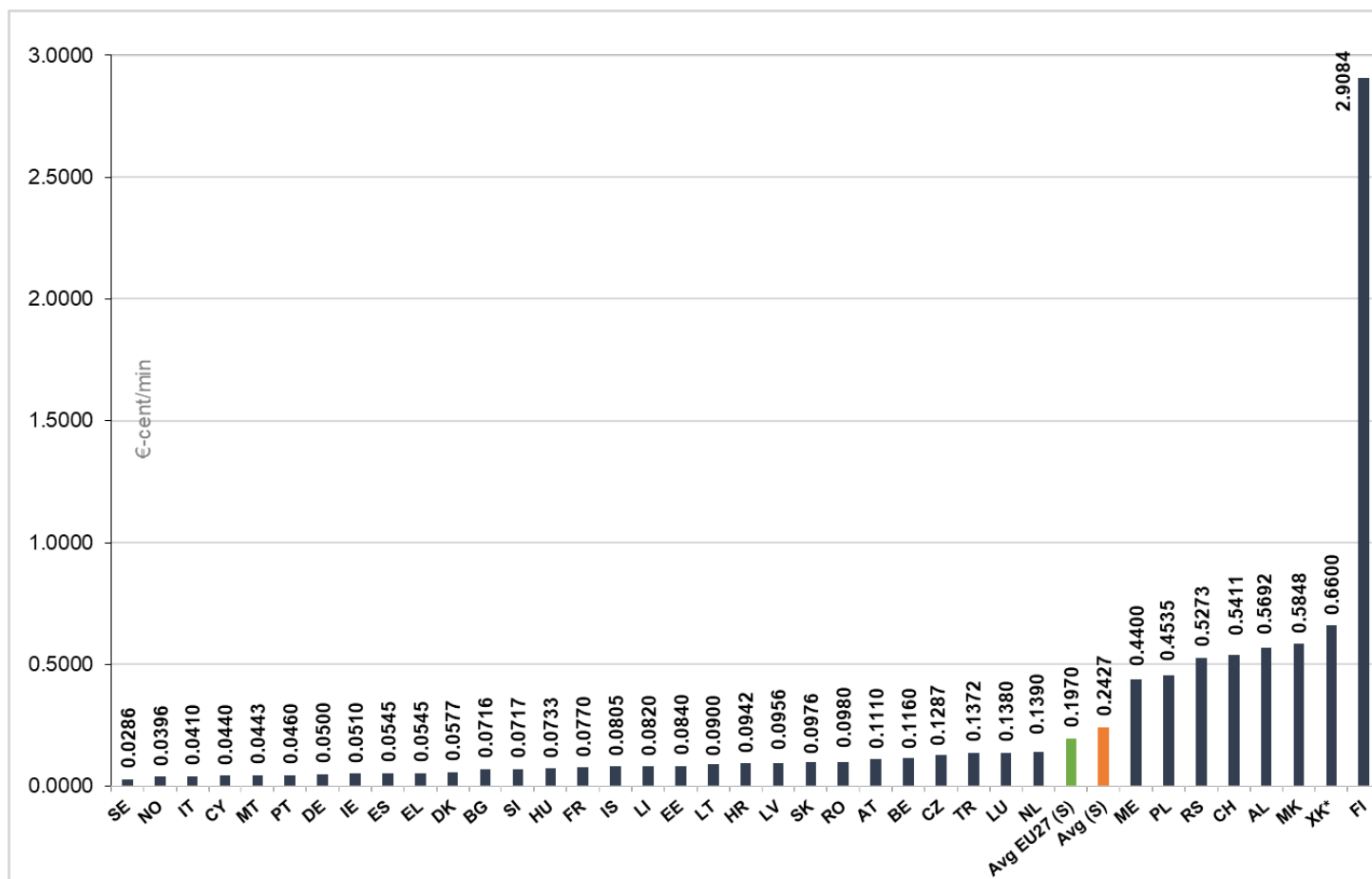
³ 27 EU member states and 5 countries candidates (Albania, Montenegro, North Macedonia, Serbia, Turkey) as well as a potential candidate – Kosovo*, plus 4 EFTA states (Switzerland, Iceland, Norway and Liechtenstein). The United Kingdom withdrew from the European Union on 31 January 2020. Since the January 2021 Report, the UK data are not available to BEREC and, thus, they are not included in this TR Report.

* This designation is without prejudice to positions on status, and it is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo declaration of independence. This footnote applies throughout the report.

⁴ The weighted averages weigh each country's average rate with the share of the country's subscribers (total subscribers per country / total subscribers in all countries).

Overview of incumbents' lowest regulated fixed termination rates per country – 30 June 2021 (eurocents per minute of service)

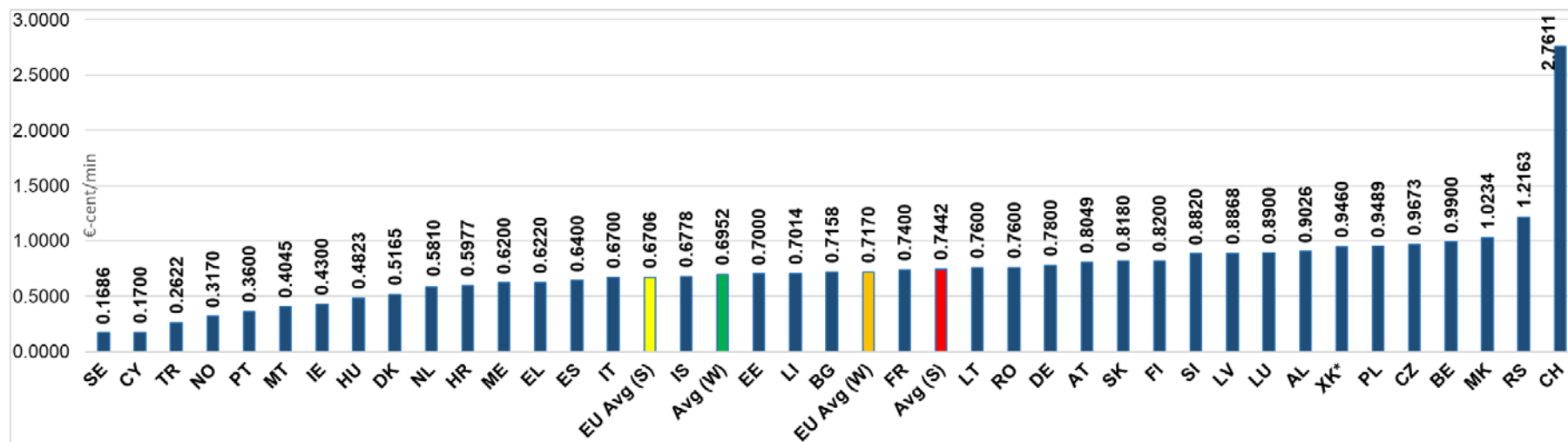
Figure 1 FTRs



Source: NRAs, BEREC

MTR per country – 30 June 2021 (eurocents per minute of service)

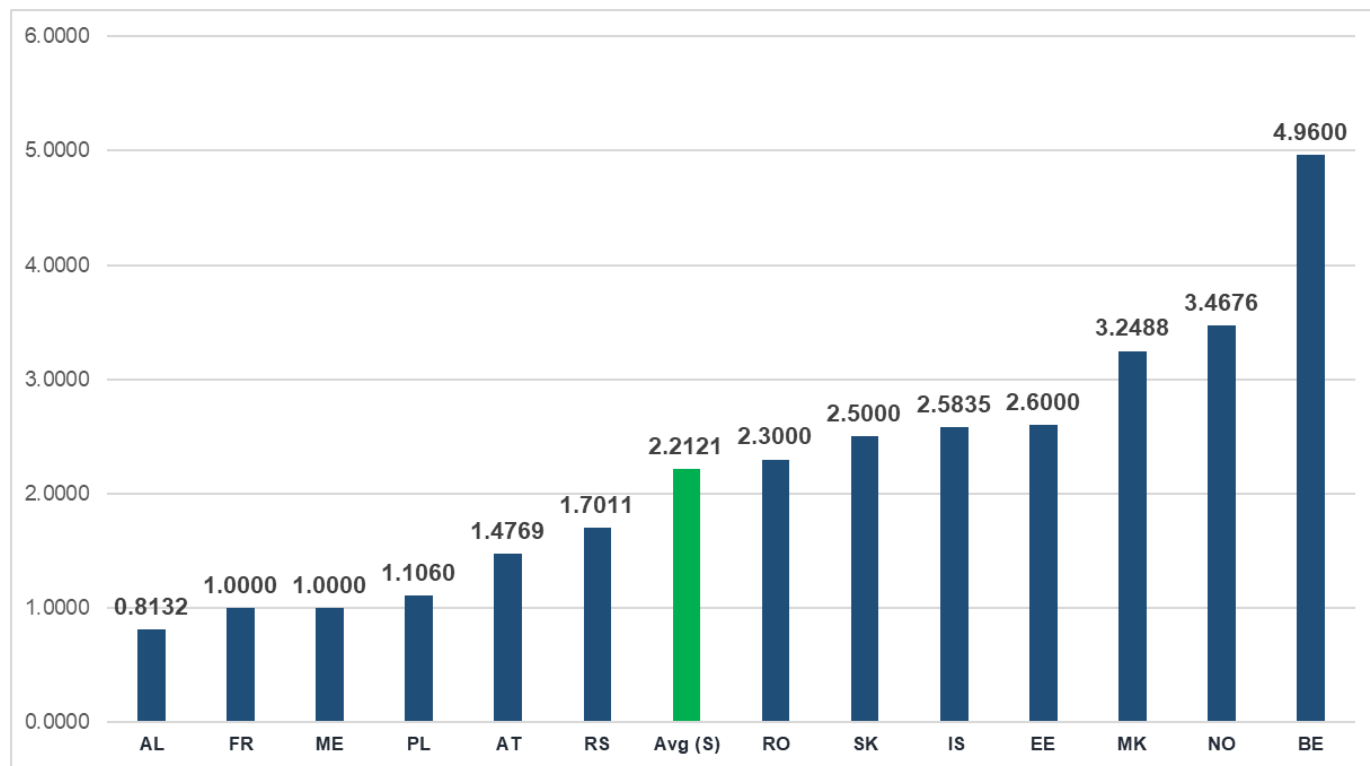
Figure 2 MTRs



Source: NRAs, BEREC

SMS TR per country – 30 June 2021 (eurocents per message)

Figure 3 SMS TRs



Source: NRAs, BEREC

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, as highlighted below:

- 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 fee 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/participants are present, in general three main layers for interconnection are defined:
 - i) layer 1⁵, 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 or interconnection layers, 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, an average price has been calculated taking into account the traffic distribution between peak and off-peak time in each case. 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 operators

⁵ Layer 1 is defined as the closest possible interconnection level to the network termination point.

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

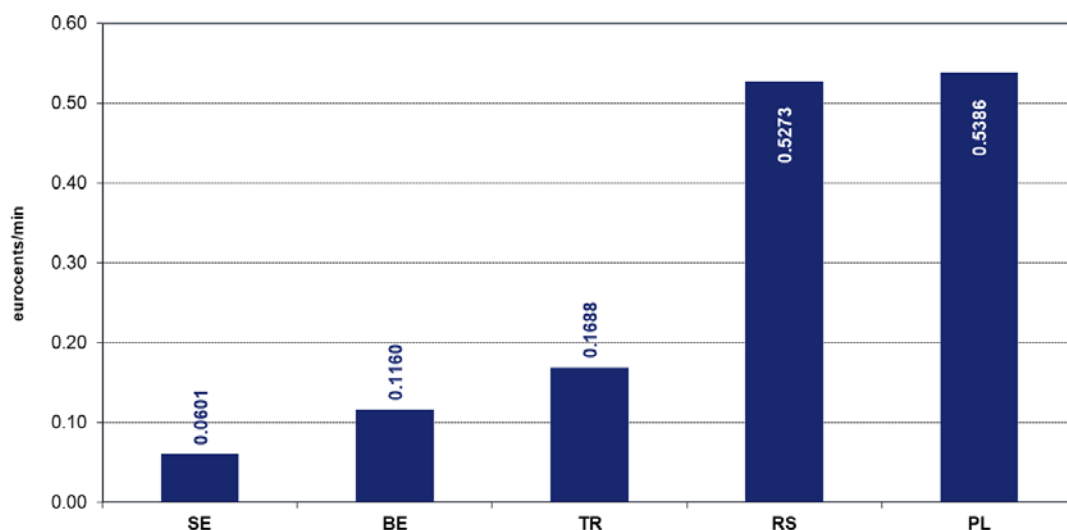
The lowest regulated rate is the rate applied by the operator at the level of interconnection that is closest to the network termination point. The second and third lowest regulated rates apply only to operators that have more than one regulated rate/interconnection layer.

Five (5) countries out of 37 countries/participants maintain interconnection services in fixed networks at two different levels in the hierarchy of the incumbents' networks and other three (3) countries have three layers of interconnection.

Incumbents' fixed termination rates per lowest regulated rate and country

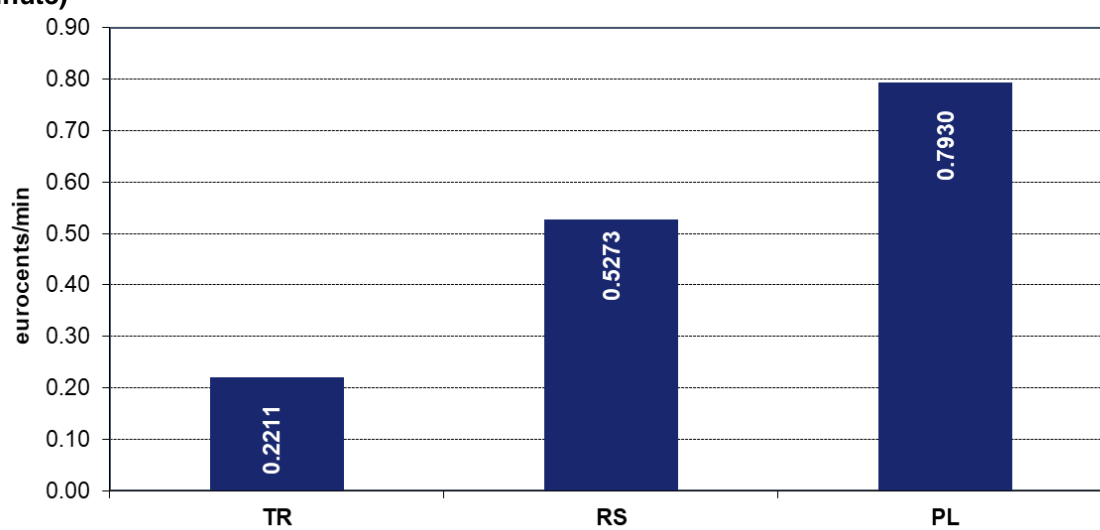
Figures 4 and 5 show the incumbents' second and third lowest regulated fixed termination rate per country. For more information on the individual lowest rates of respective incumbents, please refer to Figure 1 and respectively [Annex 1](#).

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



Source: NRAs, BEREC

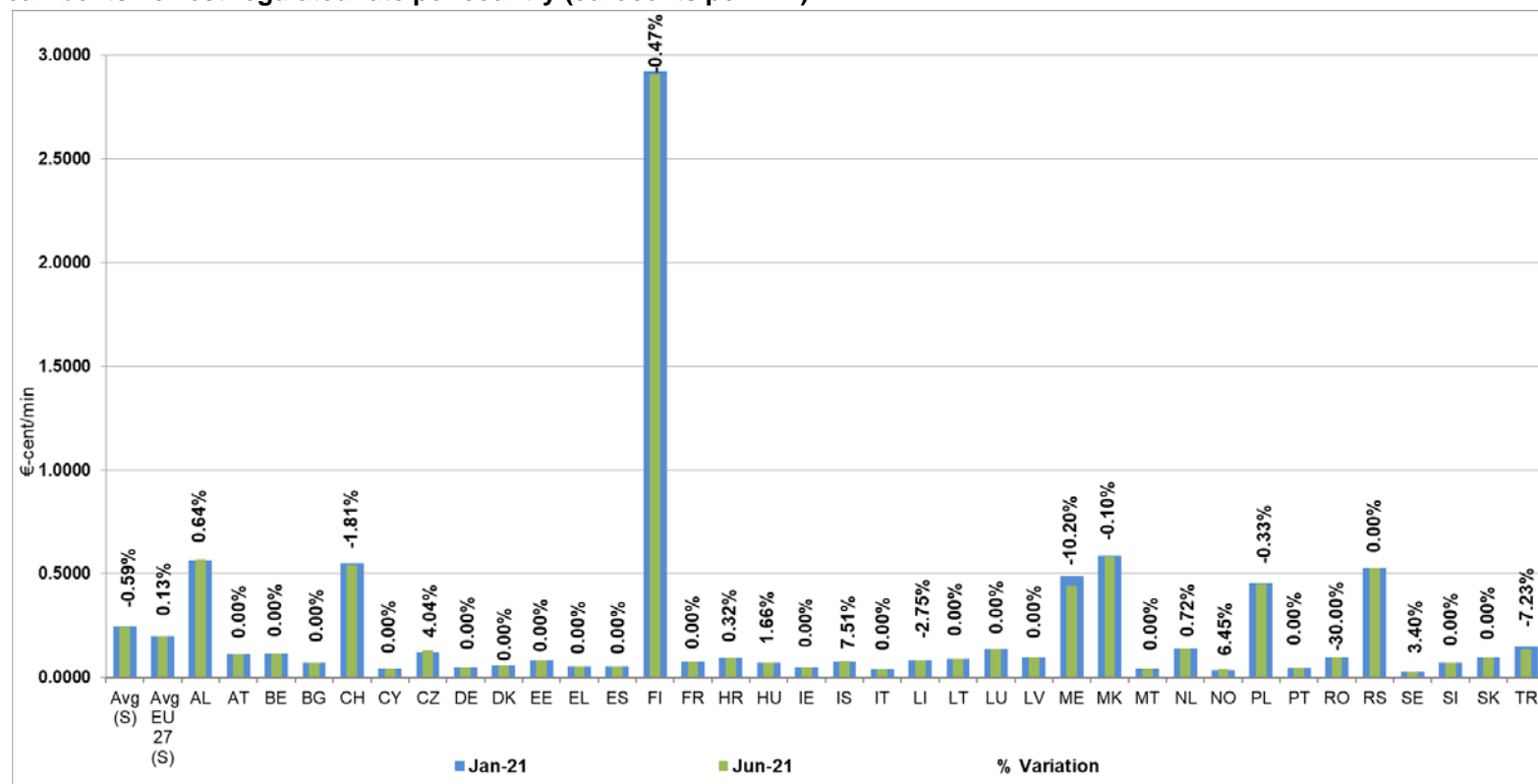
Figure 5 Incumbents' third lowest regulated fixed termination rate per country (eurocents per minute)



Source: NRAs, BEREC

2.3. Short term evolution of fixed incumbents' FTRs (from January 2021 to 30 June 2021)

Figure 6 Incumbents' lowest regulated rate per country (eurocents per min)^{6 7}



Source: NRAs, BEREC

⁶ The UK data are not included into calculation of FTRs' variation in the period from January 2021 to 30 June 2021; UK is also excluded both from the Avg (S) and Avg EU27(S) calculations.

⁷ For the period's change, only two decimals are considered.

The above chart shows the variation in percentage of the lowest regulated fixed termination rate of incumbents between January 2021 and 30 June 2021. For easier comparison, rates are stated in eurocents. The reported changes in FTRs in non-Euro countries/participants (Figures 6, 7 and 8) are partially due to the currency exchange rate variations. The exchange rates used are reported in [Annex 10](#).

Lowest regulated rates (LRR) changes in FTRs in non-euro countries/participants:

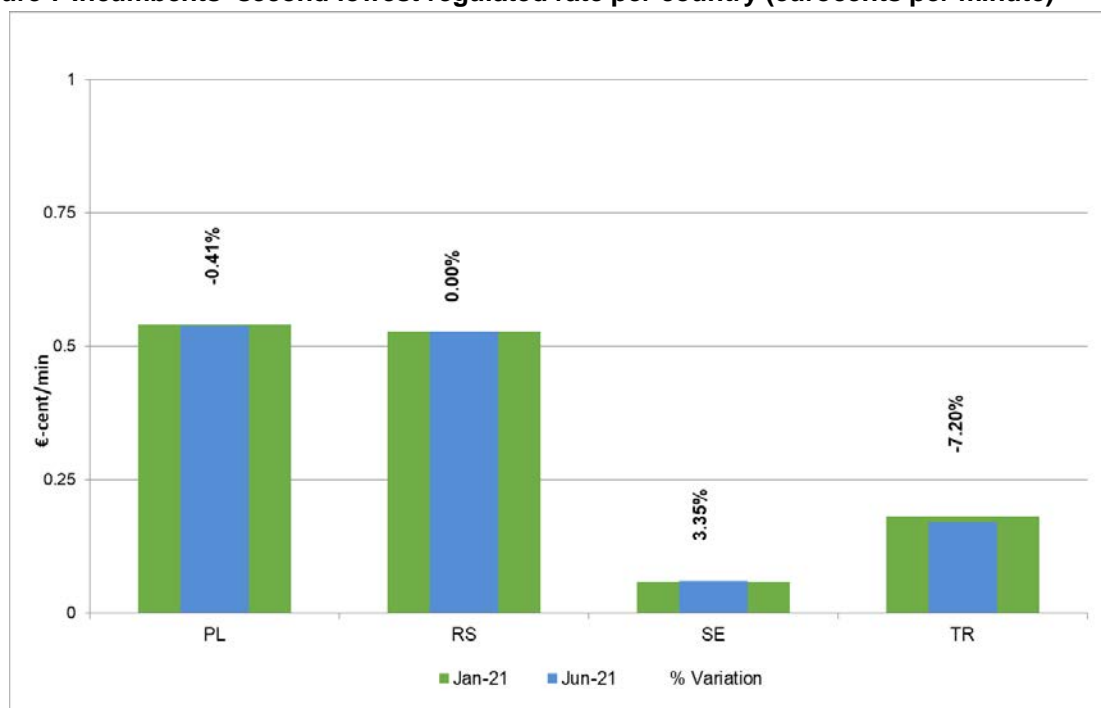
The rates (in eurocents) decreased in seven non-euro countries/participants, as follows: Romania (by 30.00%), Montenegro (by 10.20%), Turkey (by 7.23%), Liechtenstein (by 2.75%), Switzerland (by 1.81%), Poland (by 0.33%) and North Macedonia (by 0.10%). An increase was reported by Iceland (7.51%), Norway (6.45%), Sweden (3.40%), Czech Republic (4.04%), Hungary (1.66%), Albania (0.64%) and Croatia (0.32%) (Figure 6).

Please note that figures mentioned are shown in euros. Therefore, in some cases, there is a change in the value in euros, despite the fact that the price remains the same in national currency, since a fluctuation of the currency exchange rate impacts directly the values.

2nd LRR changes in FTRs in non-euro countries/participants:

The rates (in eurocents) decreased in Turkey (by 7.20%) and Poland (by 0.41%), while it increased in Sweden (by 3.35%). The changes occurred because of impact of currency exchange rate on the value provided in national currency.

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

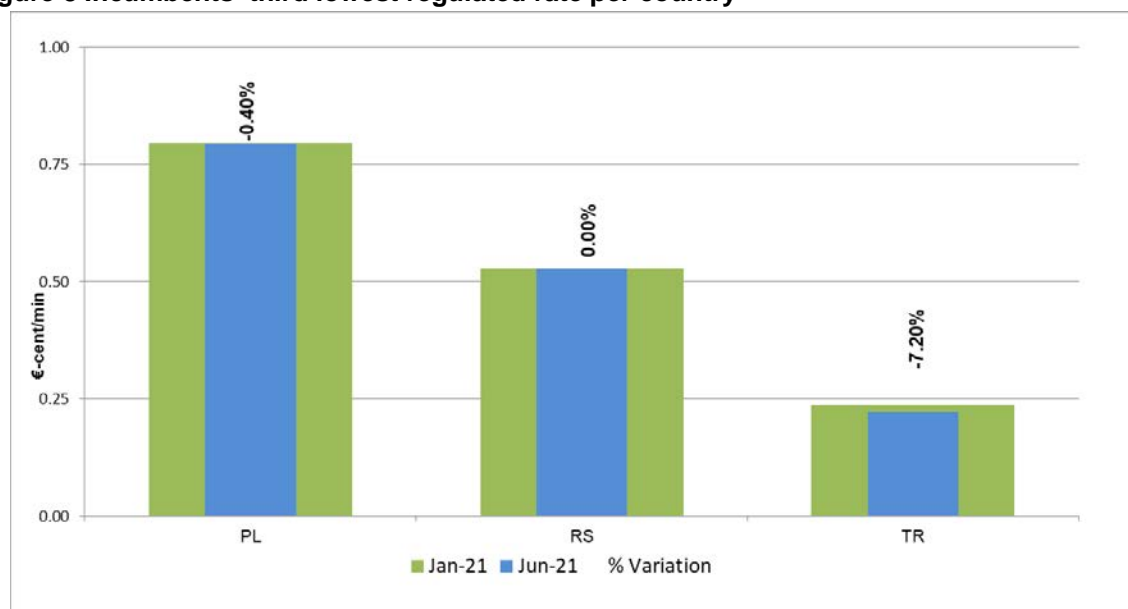


Source: NRAs, BEREC

3rd LRR changes in FTRs in non-euro countries/participants:

There have been no changes in the 3rd LRR of the FTRs reported by those countries where the national currency is not euro. With regards to the impact of the currency exchange rate on the value provided in national currency, the 3rd LRR decreased by 0.40% in Poland and by 7.20% in Turkey between January 2021 and 30 June 2021 when expressed in eurocents per minute.

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 per country from interconnection services across all layers and for all operators, together with the simple average (depicted by the orange horizontal line). The data refer to the entire year of 2020, unless otherwise stated in the notes of [Annex 2](#).

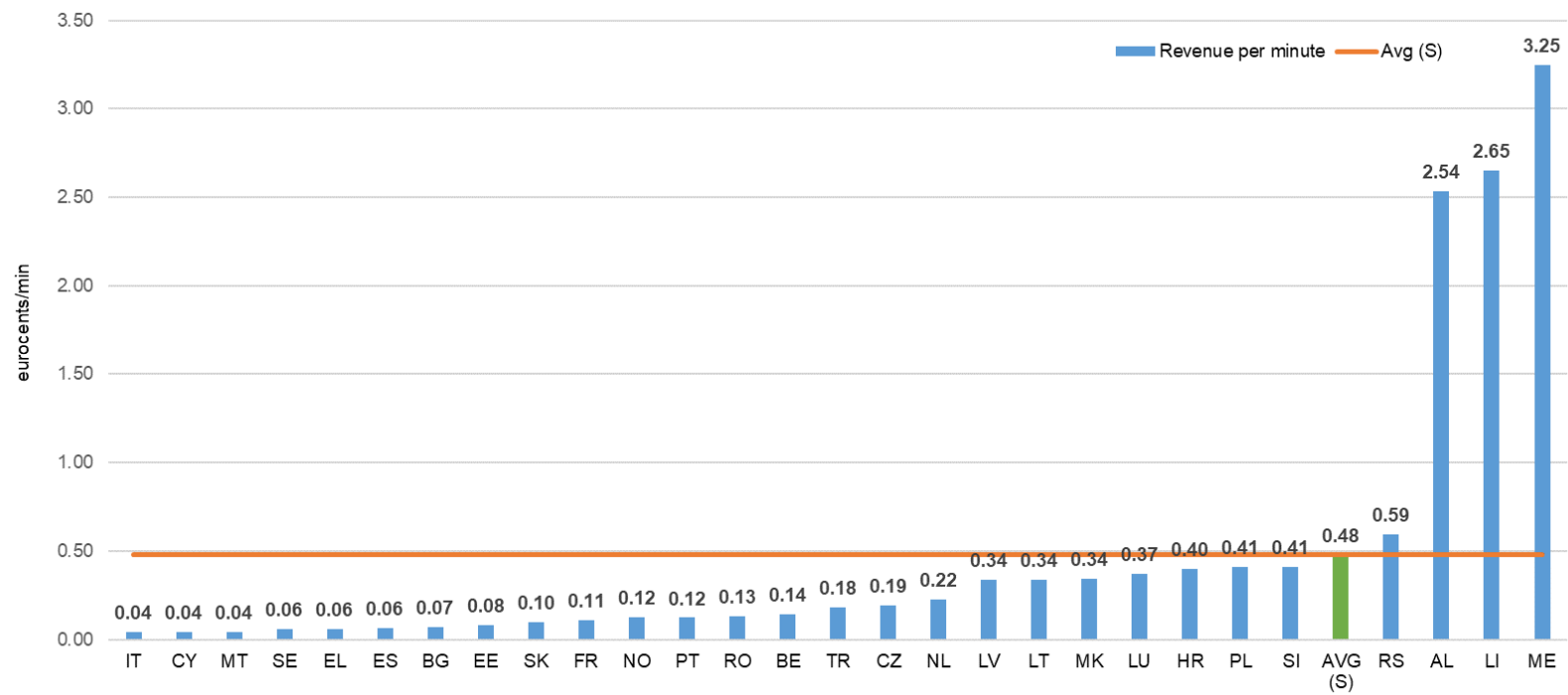
Note that the average revenues per minute provided are aggregated for each country considering:

- 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.

It is worth noting that the comparison across countries has its limitations, since each country may have a different distribution in the usage across the different layers of interconnection and in the consideration of peak and off-peak traffic respectively.

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

Figure 9 Average revenue per minute per country (eurocents per minute)



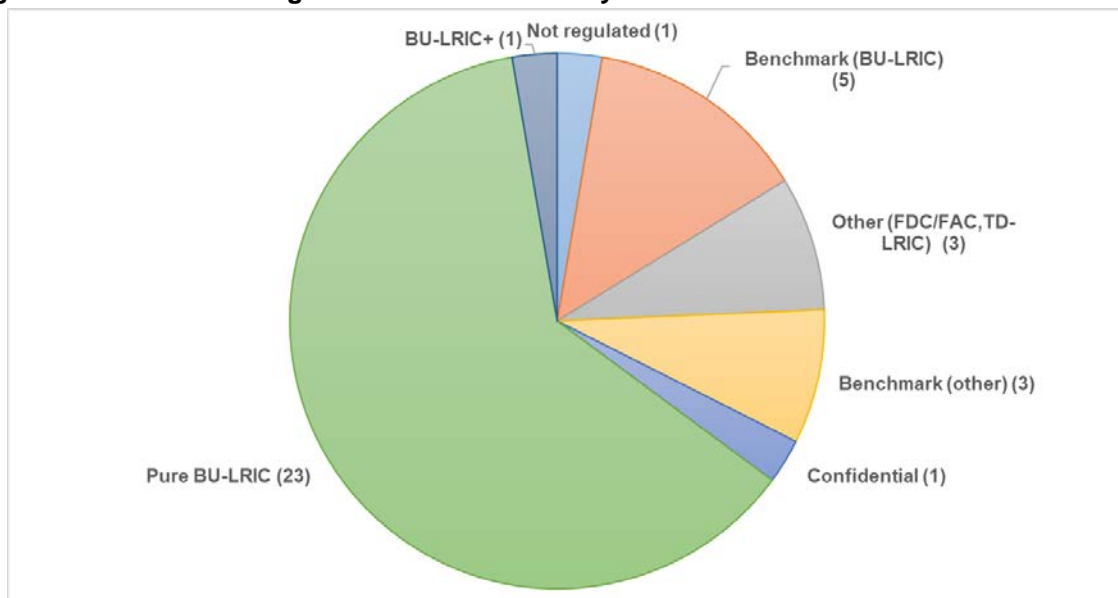
Source: NRAs, BEREC

2.5. FTR regulatory model implemented and symmetry overview

Most NRAs (23) use Pure BU LRIC models to set FTRs, while 5 NRAs use Benchmarking (BU-LRIC) approaches and Benchmark (other) is used by 3 NRAs. Further, 1 NRA uses a BU LRAIC+ model and 1 NRA reported its cost model as confidential (Figure 10).

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

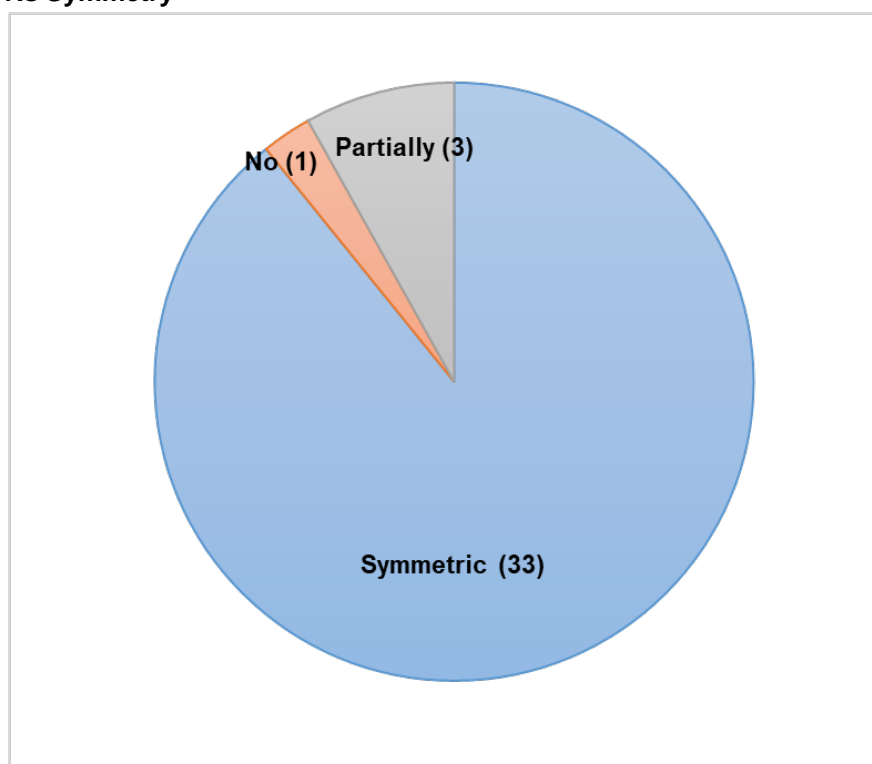
Figure 10 Cost accounting models for FTR used by NRAs



Source: NRAs, BEREC

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 23 NRAs using Pure BU LRIC models, 8 NRAs are using Benchmarking, while 5 of these NRAs are using Benchmarking based on Pure BU LRIC.

Furthermore, in most of the respondent countries/participants (33), FTRs are symmetric across all operators. 3 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 (MTRs) with reference data as of 30 June 2021 and their recent evolution. The purpose of this comparison is to provide an indication of the level of MTRs across the countries/participants, their variations and the cost models adopted for setting the respective MTRs.

The present overview of MTRs is based upon the results of a request for information sent to all NRAs in July 2021. It includes data from thirty-seven (37) countries/participants⁸.

3.1. Assumptions made for the benchmarking

For the present benchmarking exercise, the following assumptions have been made in order to make tariffs comparable⁹:

- 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 weighing 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/participants reporting data) and at EU level (including only the 27 EU member states). The weighted averages weigh 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, the different estimation methods used among European countries (especially in the case of pre-paid consumers) need to be considered. Mobile subscribers (active SIM cards) mean 2G, 3G, 4G and 5G subscribers of a Mobile Network Operator or Mobile Virtual Network Operator. 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.

Regarding the short-term MTR evolution (from January 2021 to 30 June 2021), 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);

⁸ The United Kingdom withdrew from the European Union on 31 January 2020 with the transition period ended on 31 December 2020. Accordingly, the UK is no longer part of TR Report.

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

- ii. Currency exchange rate variations in non-EUR countries¹⁰;
- 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 30 June 2021)

Table 1- Average MTR per country

Country/Participant	Average MTR per country/participant (eurocents/min)
AL	0.9026
AT	0.8049
BE	0.9900
BG	0.7158
CH	2.7611
CY	0.1700
CZ	0.9673
DE	0.7800
DK	0.5165
EE	0.7000
EL	0.6220
ES	0.6400
FI	0.8200
FR	0.7400
HR	0.5977
HU	0.4823
IE	0.4300
IS	0.6778
IT	0.6700
LI	0.7014
LT	0.7600
LU	0.8900
LV	0.8868
ME	0.6200
MK	1.0234
MT	0.4045
NL	0.5810
NO	0.3170
PL	0.9489
PT	0.3600
RO	0.7600

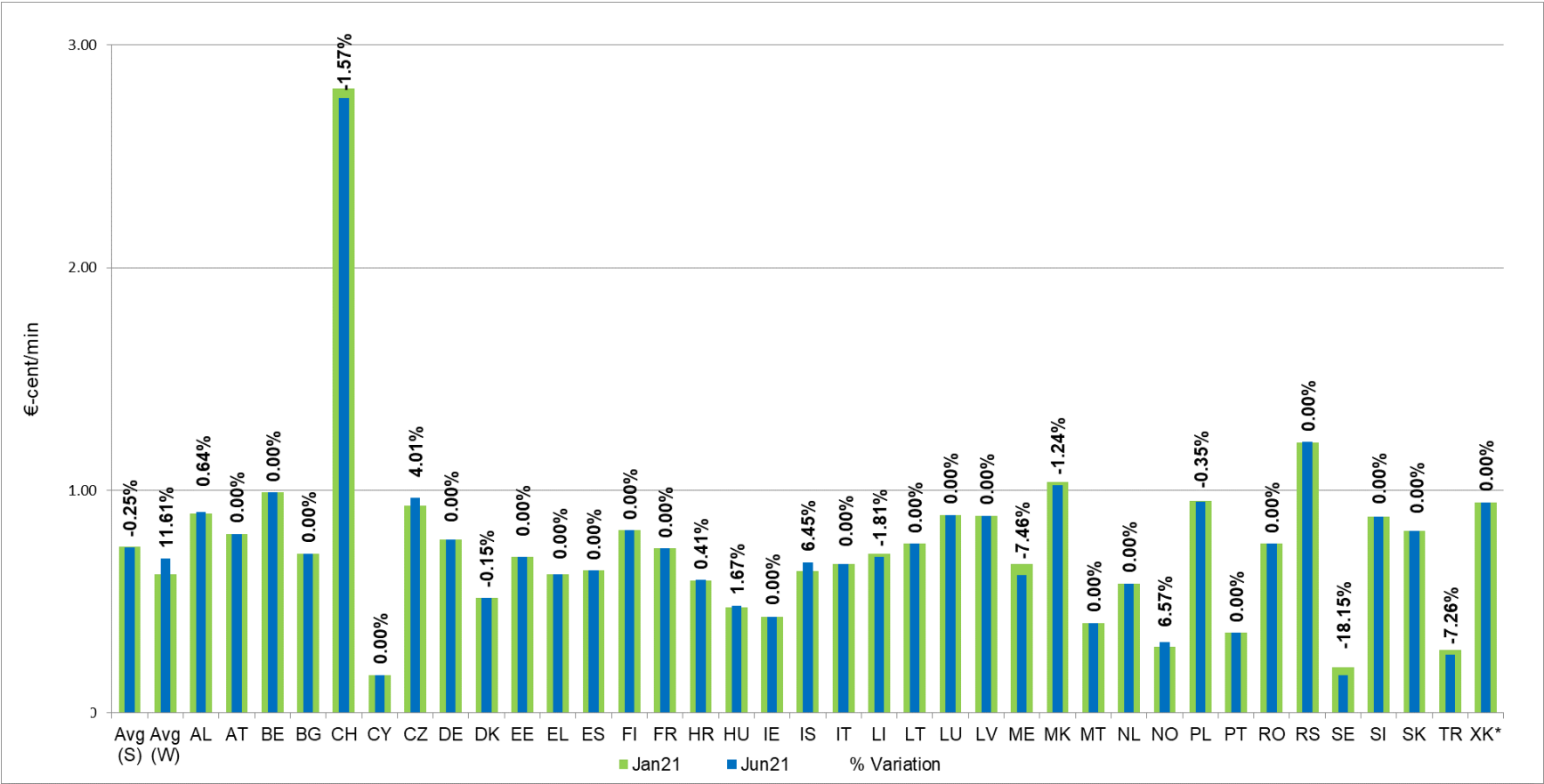
¹⁰ This only affects the six months MTRs evolution presented in figure 12, since the percentage of tariff variation in each country (figure 13) has been calculated by comparing the rates expressed in terms of the national currency.

Country/Participant	Average MTR per country/participant (eurocents/min)
RS	1.2163
SE	0.1686
SI	0.8820
SK	0.8180
TR	0.2621
XK*	0.9460
Avg (S)	0.7442
Avg (W)	0.6952
EU Avg (S)	0.6706
EU Avg (W)	0.7170

Figure 12 shows the short-term variations of MTRs in eurocents. This figure illustrates the effect of the exchange rate in the six months period considered.

Variation of MTRs per country (from January 2021 to 30 June 2021)

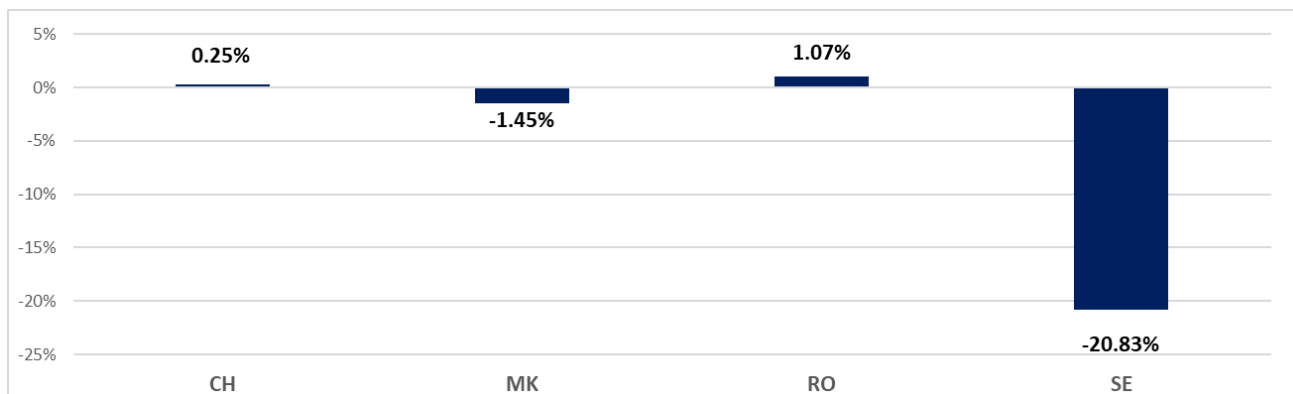
Figure 12 Variation in eurocents and percentages



Source: NRAs, BEREC

Variation of average MTRs in national currency other than euro per country (from January 2021 to 30 June 2021)

Figure 13 Variation in national currency (%)



Source: NRAs, BEREC

Most countries/participants did not experience a real short-term variation of MTRs and, therefore, are not shown in figure 13.

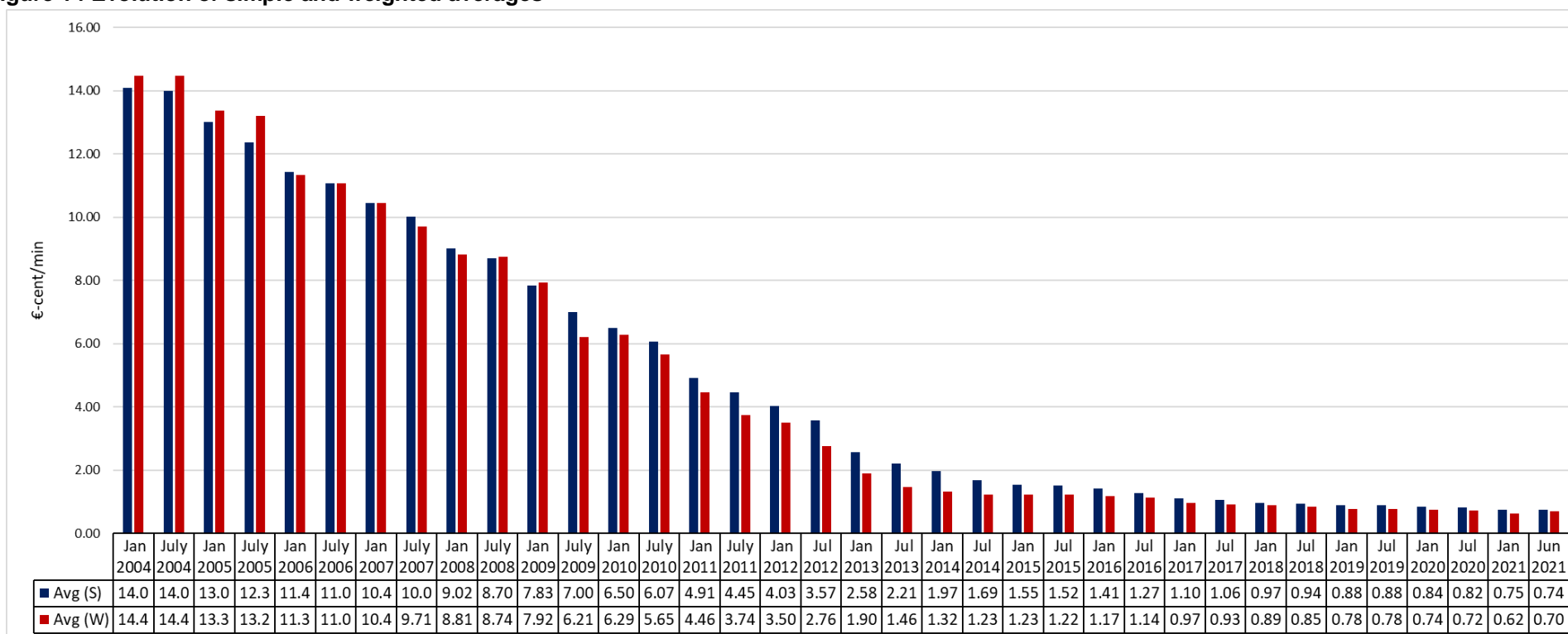
3.3. Average MTR per operator

There are a number of countries where the data regarding number of subscribers and/or market share has been declared as confidential and, for this reason, the report does not publish these information. Nevertheless, the 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 level¹¹

Figure 14 Evolution of simple and weighted averages



Source: NRAs, BEREC

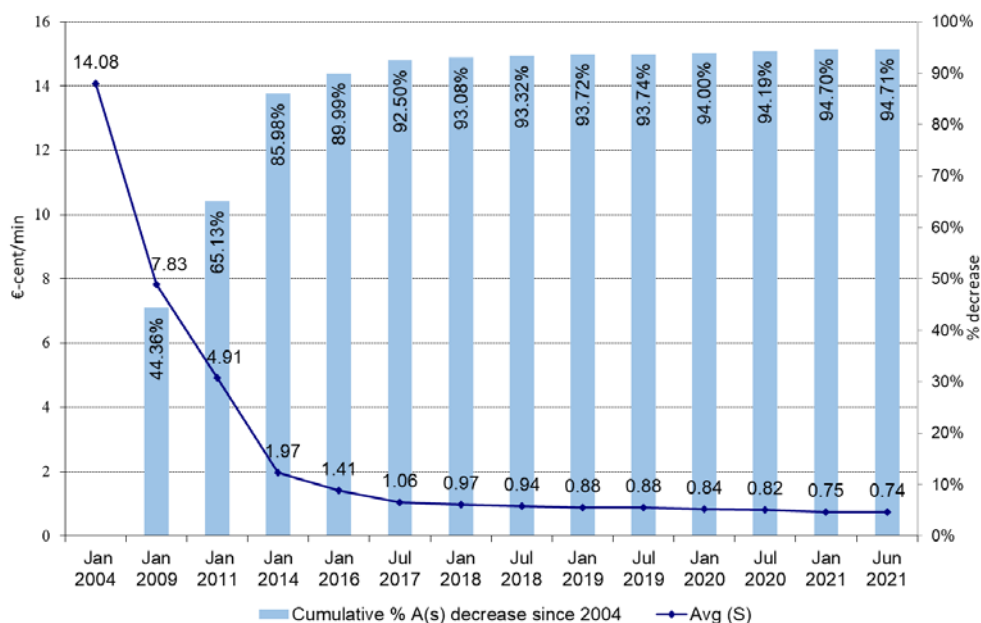
Note to Figure 14: Averages are based on nominal rates per minute of service. The number of countries/participants and operators considered has increased over the years, thus affecting the average slightly. The weighted average does not take into account countries not providing the total number of subscribers. Thus, the graph shows the general trend.

¹¹ UK data are excluded from the calculations as from January 2021.

Figure 15 and Figure 16 show the cumulative declines of the simple and the weighted averages of European MTRs since 2004. Considering the number of countries/participants and operators included over the years, the simple average MTRs dropped by almost 95% since January 2004, from 14.08 eurocents to 0.74 eurocents at 30 June 2021.

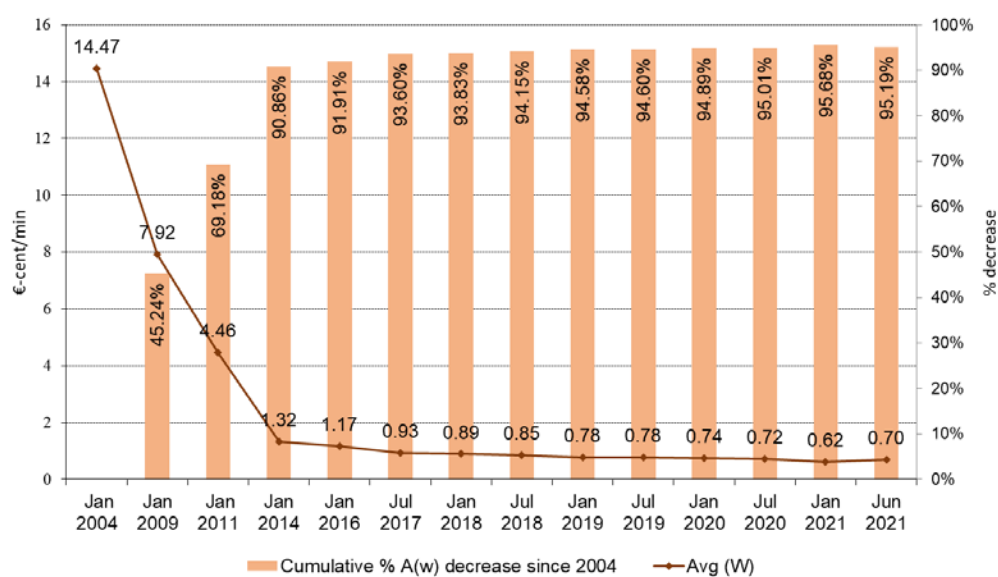
The weighted average of European MTRs has declined from 14.47 eurocents to 0.70 eurocents at the end of June 2021.

Figure 15 European MTRs simple average and cumulative decline



Source: NRAs, BEREC

Figure 16 European MTRs weighted average and cumulative decline



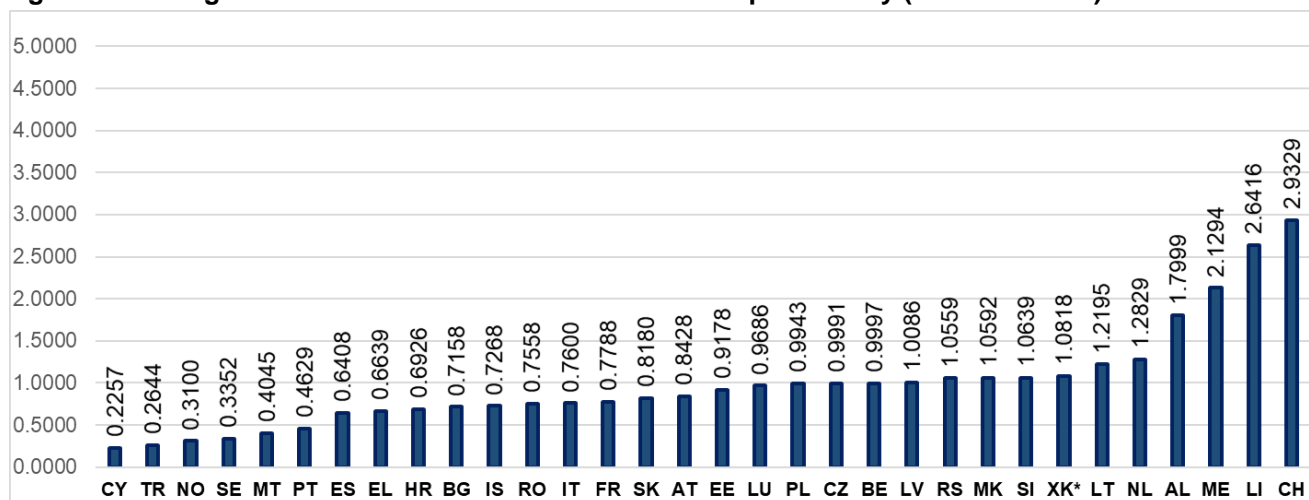
Source: NRAs, BEREC

3.5. Average mobile termination revenue per minute per country

The average wholesale mobile termination revenue per minute (see Figure 17 below and [Annex 7](#)) is obtained as a ratio of total revenues from termination of mobile voice services divided by the total number of minutes of mobile termination provided by the operators. The data refer to the entire year of 2020, unless otherwise stated in the relevant notes.

Some countries do not collect information about mobile termination revenues or treat this data as confidential. Those countries are not included in Figure 17.

Figure 17 Average wholesale mobile termination revenues per country (eurocents/min)



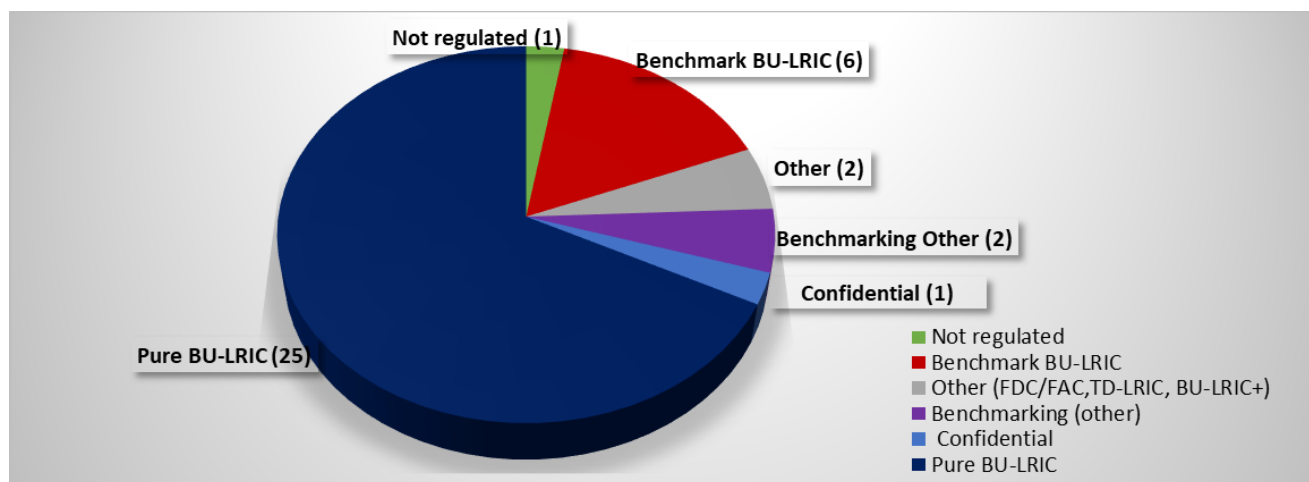
Source: NRAs, BEREC

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

3.6. Regulatory model implemented and glide paths for MTRs

In the majority of countries/participants, 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 and one NRA reported its model to be confidential.

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 30 June 2021. Twenty-six (26) 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 considered¹²).

4.1. Assumptions made for the benchmarking

The SMS TRs collected in this report reflect the wholesale rates applied among domestic operators for an off-net SMS exchange, excluding VAT. They are presented for each country as a whole.

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.

On the other hand, and due to the unregulated environment existing for SMS TRs in European countries/participants, there is a high degree of bilateral negotiation among operators. Therefore, some peculiarities in setting SMS TRs could emerge and require additional clarifications (when compared to the exercise of benchmarking the FTRs and the MTRs). The important ones are provided below:

- In Slovakia, 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 highest SMS TR value is reported. See more details in Table 2 (subsection 4.2).
- Additionally, in some countries, operators¹³ negotiate different SMS TRs vis-à-vis each one of the other operators. In this case, the highest and the lowest SMS TRs are reported. See more details in Table 2 (subsection 4.2).

¹² 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 which are reflected in this report.

¹³ CY, LI, MT, TR.

A simple average European level has been calculated as an average value of the SMS TRs among European countries/participants¹⁴. Since not all countries report complete sets of data, no other calculations are made.

For non-Euro countries, the exchange rates reported in the Annex 10 are used.

For more information, please consult Annex 9: SMS TRs per country.

¹⁴ Except CY, LI, MT and TR, because of different SMS TRs among different operators within the country.

4.2. SMS TRs per country (as of 30 June 2021)

Table 2 - SMS TRs per country/participant¹⁵

Country/Participant	SMS TRs per country/participant (eurocents)
AL	0.8132
AT	1.4769
BE	4.9600
BG	Confidential
CH	Confidential
CY	Varies
CZ	Confidential
DE	N/A
DK	N/A
EE	2.6000
EL	Confidential
ES	Varies
FI	N/A
FR	1.0000
MK	3.2488
HR	N/A
HU	Confidential
IS	2.5835
IT	Confidential
LI	Varies
LT	N/A
LU	N/A
LV	N/A
ME	1.0000
MT	Varies
NL	N/A
NO	3.4676
PL	1.1060
PT	Confidential
RO	2.3000
RS	1.7011
SE	N/A
SI	N/A
SK	2.5000
TR	Varies
XK*	N/A
Avg (S)	2.2121

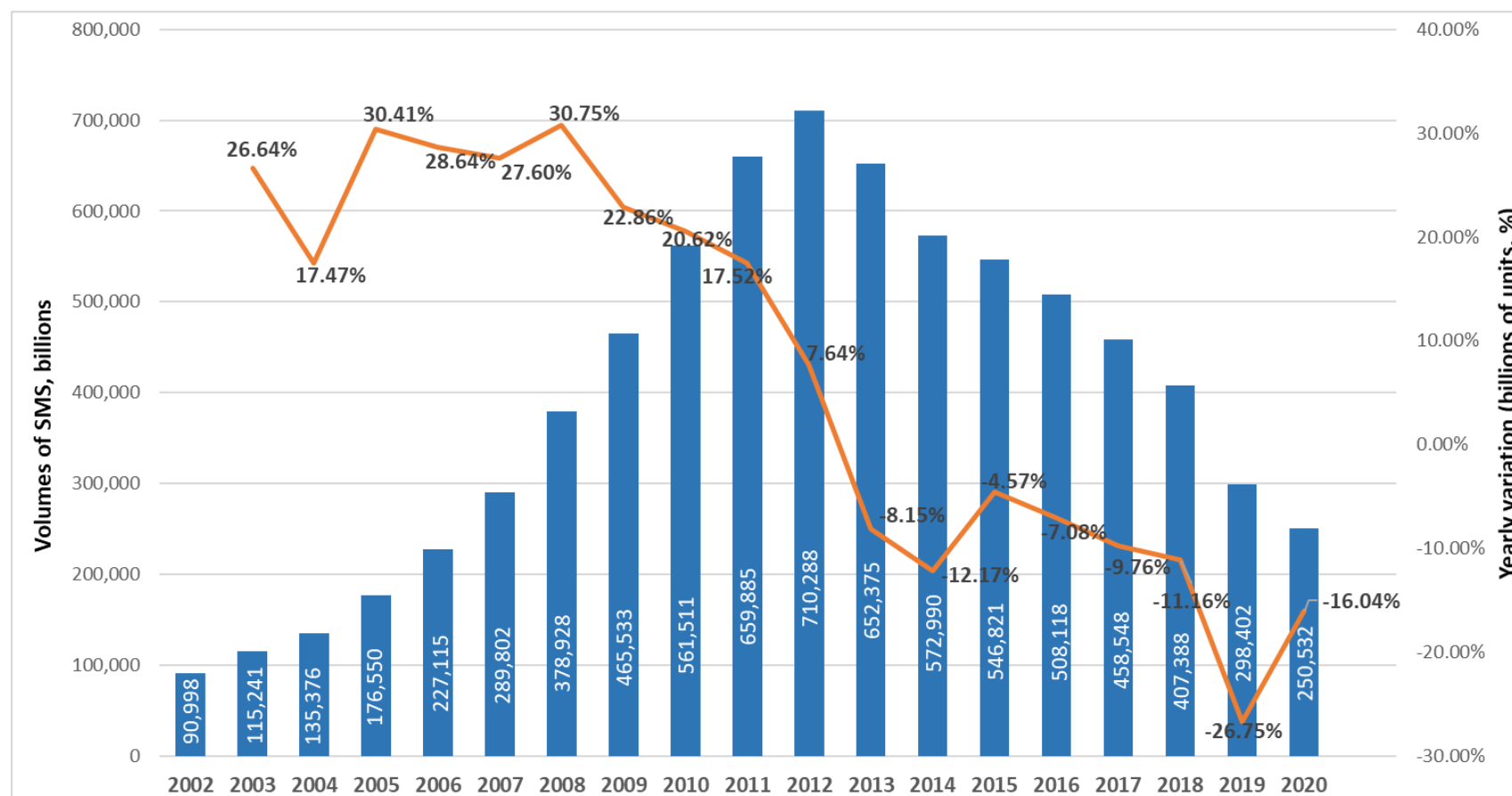
Source: NRAs, BEREC

¹⁵ N/A – No data available as SMS termination rates are not regulated

4.3. Volumes of SMS sent

Figure 19 provides information on the evolution of the volume of SMS sent since 2002 and is based on the time series of the countries from which information was available from 2002 to 2020. For each reporting year, there are some countries which didn't provide the requested data.

Figure 13 Total volumes of SMS sent in Europe (2002 – 2020) and yearly variation (billions of units, % change)



Source: NRAs, BEREC

Annex

Annex 1 Fixed termination rates as of 30 June 2021

Table 3

Country/ Participant	Operator	Lowest Regulated Rate	WA in cents
AL	Albtelecom	Single-rate	0.5692
	Vodafone - Abcom	Single-rate	0.5692
	Albanian Satellite Communications	Single-rate	0.5692
	Rest of operators	Single-rate	0.5692
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	LRR	0.1160
	Proximus	2nd LRR	0.1160
	Rest of operators	Single-rate	0.1160
BG	Bulgarian Telecommunications Company	Single-rate	0.0716
	A1 Bulgaria	Single-rate	0.0716
	Telenor Bulgaria	Single-rate	0.0716
	Rest of operators	Single-rate	0.0716
CH	Swisscom	Single-rate	0.5411
CY	Cyta	Single-rate	0.0440
	Epic	Single-rate	0.0440
CZ	Česká telekomunikační infrastruktura a.s.	Single-rate	0.1287
	Vodafone Czech Republic a.s.	Single-rate	0.1287
	T-Mobile Czech Republic a.s.	Single-rate	0.1287
	IPEX a.s.	Single-rate	0.1287
	miniTEL s.r.o.	Single-rate	0.1287
	Nej.cz s.r.o.	Single-rate	0.1287
	Rest of operators	Single-rate	0.1287
DE	Telekom Deutschland GmbH	Lowest Regulated Rate	0.0500
DK	TDC	Single-rate	0.0577
	Telia	Single-rate	0.0577
	Telenor	Single-rate	0.0577
EE	Telia	Single-rate	0.0840
	Elisa	Single-rate	0.0850
	Elisa Teleteenused	Single-rate	0.0850
	STV	Single-rate	0.0850

Country/ Participant	Operator	Lowest Regulated Rate	WA in cents
EL	OTE	Single-rate	0.0545
	Forthnet	Single-rate	0.0545
	Hol/Vodafone	Single-rate	0.0545
	Wind	Single-rate	0.0545
ES	Telefónica de España	Single-rate	0.0545
	Vodafone - Ono	Single-rate	0.0545
	Orange	Single-rate	0.0545
	Grupo Masmov!!	Single-rate	0.0545
	Euskaltel	Single-rate	0.0545
	Rest of operators	Single-rate	0.0545
FI	DNA Oyj	Single-rate	2.8000
	Elisa Oyj	Single-rate	2.8000
	Telia Finland Oyj	Single-rate	2.8000
	Rest of operators (weighted average)	Single-rate	3.2000
	Weighted average of all operators	Average	2.9084
FR	All operators	Single-rate	0.0770
HR	HT	Single-rate	0.0942
	Optima	Single-rate	0.0942
	A1	Single-rate	0.0942
HU	Magyar Telekom	Single-rate	0.0733
	Digi	Single-rate	0.0733
	Vodafone	Single-rate	0.0733
	Rest of operators	Single-rate	0.0733
IE	Eircom	Lowest Regulated Rate	0.0510
	Virgin Media	Lowest Regulated Rate	0.0510
	Vodafone	Lowest Regulated Rate	0.0510
	Sky	Not regulated	
	Rest of operators	Lowest Regulated Rate	0.0510
IS	Siminn	Single-rate	0.0805
	Vodafone	Single-rate	0.0805
IT	TIM	Single-rate	0.0410
	Vodafone Italia	Single-rate	0.0410
	Wind tre	Single-rate	0.0410
	Fastweb	Single-rate	0.0410
	Linkem	Single-rate	0.0410
	Eolo	Single-rate	0.0410
	Rest of operators	Single-rate	0.0410
LT	Telia Lietuva, AB	Single-rate	0.0900
	CSC Telecom	Single-rate	0.0900

Country/ Participant	Operator	Lowest Regulated Rate	WA in cents
	Rest of operators	Single-rate	0.0900
LI	Telecom Liechtenstein AG	Single-rate	0.0820
	Backbone Solutions AG	Single-rate	0.0820
	Nexphone AG	Single-rate	0.0820
LU	Post Luxembourg	Single-rate	0.1380
	Proximus Luxembourg S.A.	Single-rate	0.1380
	Luxembourg Online S.A.	Single-rate	0.1380
	Rest of operators	Single-rate	0.1380
LV	Tet	Single-rate	0.0956
	Latvijas mobilais telefons	Single-rate	0.0956
	CSC Telecom	Single-rate	0.0956
	Baltcom	Single-rate	0.0956
	Rest of operators	Single-rate	0.0956
ME	Crnogorski Telekom	Single-rate	0.4400
	Mtel	Single-rate	0.4400
	Telenor	Single-rate	0.4400
	Telemach	Single-rate	0.4400
MT	Go plc	Single-rate	0.0443
	Melita Ltd	Single-rate	0.0443
	Epic Communications Ltd	Single-rate	0.0443
	Vanilla Telecoms Ltd	Single-rate	0.0443
MK	Makedonski Telekom	Single-rate	0.5848
	A1	Single-rate	0.5848
	Telekabel Robi	Single-rate	0.5848
	Rest of operators	Single-rate	0.5848
NL	KPN	Single-rate	0.1390
	Vodafone Ziggo	Single-rate	0.1390
	Rest of operators	Single-rate	0.1390
NO	Telenor	Single-rate	0.0396
	Telia	Single-rate	0.0396
	Nextgentel	Single-rate	0.0396
	Rest of operators	Single-rate	0.0396
PL	Orange Polska S.A.	LRR	0.4535
	Orange Polska S.A.	2nd LRR	0.5386
	Orange Polska S.A.	3rd LRR	0.7930
	UPC Polska sp. z o.o.	Single-rate	0.4535
	Netia SA	Single-rate	0.4535
	T-Mobile Polska S.A.	Single-rate	0.4535
	Multimedia Polska SP. Z O.O.	Single-rate	0.4535
	Vectra S.A.	Single-rate	0.4811

Country/ Participant	Operator	Lowest Regulated Rate	WA in cents
PT	MEO	Single-rate	0.0460
	Grupo NOS Comunicações	Single-rate	0.0460
	Vodafone	Single-rate	0.0460
	Nowo	Single-rate	0.0460
	Rest of operators	Single-rate	0.0460
RO	Telekom Romania Communications S.A.	Single-rate	0.0980
	S.C. RCS&RDS S.A.	Single-rate	0.0980
	S.C. Vodafone Romania S.A.	Single-rate	0.0980
	Orange România S.A.	Single-rate	0.0980
RS	Telekom Srbija	LRR	0.5273
	Telekom Srbija	2nd LRR	0.5273
	Telekom Srbija	3rd LRR	0.5273
	Orion	Single-rate	0.5273
	Telenor	Single-rate	0.5273
	Serbia Broadband	Single-rate	0.5273
SE	Telia Company AB	LRR	0.0286
	Telia Company AB	2nd LRR	0.0601
	Tele2 Sverige AB inkl ComHem	LRR	0.0286
	Telavox AB	LRR	0.0286
	Telenor Sverige AB	LRR	0.0286
	Wx3 Telecom AB	LRR	0.0286
	A3 Privat AB	LRR	0.0286
	Rest of operators	LRR	0.0286
SI	Telekom Slovenije	Single-rate	0.0717
	Telemach	Single-rate	0.0717
	T-2	Single-rate	0.0717
	A1 Slovenija	Single-rate	0.0717
	Rest of operators	Single-rate	0.0717
SK	Slovak Telekom, a.s	Single-rate	0.0976
	Orange Slovensko, a.s.	Single-rate	0.0976
	UPC Broadband Slovakia, s.r.o.	Single-rate	0.0976
	SWAN, a.s.	Single-rate	0.0976
TR	Türk Telekom	LRR	0.1372
	Türk Telekom	2nd LRR	0.1688
	Türk Telekom	3rd LRR	0.2211
	TTNet	Single-rate	0.3159
	Türksat	Single-rate	0.3159
	Superonline	Single-rate	0.3159
	Rest of operators	Single-rate	0.3159
XK	Telekom of Kosovo SH.A.	Single-rate	0.6600

Country/ Participant	Operator	Lowest Regulated Rate	WA in cents
	Ipko Telecommunications LLC	Single-rate	0.6600
	Kujtesa.NET SH.P.K.	Single-rate	0.6600
	mts d.o.o.	Single-rate	0.6600

Notes to table 3:

IE: Please note, Sky is a resale based FSP (purchased from BT). BT is required to comply with our maximum termination rates as set out in ComReg Decision D11/19.

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

SE: 0.29 refers to single segment (within an interconnection area) and 0.61 to double segment (between interconnection areas). All FTRs are applicable to all terminating operators.

Annex 2 Average fixed termination revenue per country

Notes to figure 9

AT: Not available.

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.

CY: Data for Cyta and Epic.

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

DK: The DBA do not collect revenues from termination.

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

FR: Final figures for 2020 will not be available before December 2021: the figures provided are an estimate based on quarterly scorecards and previous annual scorecards.

HR: In Croatia, HT switched to IP interconnections and it has access points in two regions.

HU: Not available.

IS: The regulated termination rate of 0,12 ISK/min for the year 2021 applies to calls origination within the EEA.

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.

PT: Data not available by National/Regional/Local. Total FTR minutes also include international traffic originated outside EEA, which is not subject to price control obligation. This is the reason that justifies the average revenues per minute higher than the maximum regulated value for EEA traffic.

RS: Data provided are for 2020 and include 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 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 didn't change during the reported period.

Annex 3 FTR regulatory cost accounting model implemented

Table 4

Jul-21	COST ACCOUNTING MODEL			Period 1 to 5 is not applicable (NA ¹⁶) for EU countries				
	Model	Rate status	When a tariff adopted by a final decision and meeting the standards of the TR Recommendation has been or will be firstly applied?	Period 1 - From 01/07/2021 until 31/12/2021	Period 2 - From 01/01/2022 until 30/06/2022	Period 3 - From 01/07/2022 until 31/12/2022	Period 4 - From 01/01/2023 until 30/06/2023	Period 5 - From 01/07/2023 until 31/12/2023
AL	Benchmark (Other)	adopted	01.10.2018	0.5692	0.5692			
AT	Pure BU-LRIC	adopted	01.11.2013	NA	NA	NA	NA	NA
BE	Pure BU-LRIC	adopted	01.01.2019	NA	NA	NA	NA	NA
BG	Pure BU-LRIC	adopted	01.11.2016	NA	NA	NA	NA	NA
CH	BU-LRIC+	not regulated						
CY	Pure BU-LRIC	adopted	01.01.2020	NA	NA	NA	NA	NA
CZ	Pure BU-LRIC	adopted	01.08.2014	NA	NA	NA	NA	NA
DE	Pure BU-LRIC	adopted	01.01.2021	NA	NA	NA	NA	NA
DK	Pure BU-LRIC	adopted	01.01.2013	NA	NA	NA	NA	NA
EE	Benchmark (BU-LRIC)	adopted	29.11.2019	0.0850	NA	NA	NA	NA
EL	Pure BU-LRIC	adopted	28.05.2014	NA	NA	NA	NA	NA
ES	Pure BU-LRIC	adopted		0.0545	0.0545	0.0545	0.0545	0.0545
FI	Other (FDC/FAC)	adopted		NA	NA	NA	NA	NA
FR	Pure BU-LRIC	adopted	01.01.2013	NA	NA	NA	NA	NA
HR	Pure BU-LRIC	adopted	01.01.2015	NA	NA	NA	NA	NA
HU	Pure BU-LRIC	adopted	01.07.2021	0.0733	0.0733	0.0733	0.0733	0.0733
IE	Pure BU-LRIC	adopted	01.07.2013	NA	NA	NA	NA	NA
IS	Benchmark (BU-LRIC)	notified		0.1200	0.1000	0.1000	NA	NA
IT	Pure BU-LRIC	adopted		NA	NA	NA	NA	NA
LI	Benchmark (BU-LRIC)	adopted	01.01.2021	0.0820				
LT	Benchmark (BU-LRIC)	adopted		NA	NA	NA	NA	NA

¹⁶ Max. Eurorates apply from 01.07.2021.

	COST ACCOUNTING MODEL			Period 1 to 5 is not applicable (NA ¹⁶) for EU countries				
Jul-21	Model	Rate status	When a tariff adopted by a final decision and meeting the standards of the TR Recommendation has been or will be firstly applied?	Period 1 - From 01/07/2021 until 31/12/2021	Period 2 - From 01/01/2022 until 30/06/2022	Period 3 - From 01/07/2022 until 31/12/2022	Period 4 - From 01/01/2023 until 30/06/2023	Period 5 - From 01/07/2023 until 31/12/2023
LU	Pure BU-LRIC	adopted	01.02.2021	NA	NA	NA	NA	NA
LV	Benchmark (BU-LRIC)	adopted		NA	NA	NA	NA	NA
ME	Other (TD - LRIC)	adopted		0.4400				
MK	BU-LRIC+	adopted		0.5848	0.5848	0.5848	0.5848	
MT	Pure BU-LRIC	adopted	01.07.2013	NA	NA	NA	NA	NA
NL	Pure BU-LRIC	adopted	01.07.2017	0.1390	0.1390	0.1390	0.1390	0.1390
NO	Pure BU-LRIC	adopted	01.04.2016	0.0396				
PL	Other (TD-FDC/FAC)			NA	NA	NA	NA	NA
PT	Pure BU-LRIC	adopted	01.01.2013	NA	NA	NA	NA	NA
RO	Pure BU-LRIC	adopted	01.04.2014	NA	NA	NA	NA	NA
RS	Benchmark (Other)			0.5273				
SE	Pure BU-LRIC	adopted	01.01.2014	NA	NA	NA	NA	NA
SI	Pure BU-LRIC	adopted	01.02.2020	NA	NA	NA	NA	NA
SK	Pure BU-LRIC	adopted	01.09.2018	NA	NA	NA	NA	NA
TR	Confidential							
XK	Benchmark (Other)							

Notes to table 4:

BG: The applied fixed terminating rate is cost-oriented based on Pure Bu-LRIC model: 0,0014 BGN/minute and there is no differentiation between peak/off-peak or hierarchy levels.

According to CRC's Decision 265/23.07.2020, until the adoption of the Delegated Act setting a single maximum Union-wide fixed voice termination rate, all undertakings designated as having SMP on fixed call termination market are obliged to apply cost-oriented call termination rates (equal to BGN/minute 0,0014), determined by BU-LRIC model adopted with CRC's Decision 550/20.10.2016.

FI: In Finland, there are no (ex ante) price caps on FTRs. FNOs have cost-oriented pricing obligation. The obligation is monitored ex post.

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. There is a national point of interconnection only.

LU: Regulation ILR/T21/1 of 18 January, 2021 related to the definition of the relevant market for the wholesale supply of call termination on individual public telephone networks at a fixed location (market 1/2014).

MK: BU LRIC+ model development in 2010 and update of data in 2014.

SK: RU has not used any glide path.

NO: The regulated FTR will be applicable until the Delegated Regulation is incorporated into the EEA Agreement.

TR: In Turkey, there is no differentiation in fixed termination rates such as peak and off-peak. ICTA does not regulate FTRs via glide path, in general, FTRs are revised when it is needed.

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/ Participant	Symmetry	Comments
AL	Yes	National termination tariffs are symmetric for all operators
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	
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 13 operators with SMP.
EL	Yes	
ES	Yes	
FI	Partially	The biggest operators (DNA, Elisa and Telia) have the same FTRs (2.8 cents), smaller operators have a little bit higher FTRs (3.2 cents).
FR	Yes	
HR	Yes	Symmetry in fixed network is prescribed for all operators as of the 1st January 2013.
HU	Yes	
IE	Yes	FTRs are symmetrical based on interconnection at primary exchange level for all those operators found by market review to have SMP in fixed voice call termination. Interconnection at higher levels in the network could result in transit fees. Transit fees are not regulated. There are some very small operators who have not been found previously with SMP and who charge above the regulated rate. Following a consultation process, ComReg issued Decision D09/20 which designated a further three Fixed Service Providers with SMP and are required to charge the regulated FTRs as set by D10/19 with effect from 4 January 2021
IS	Yes	
IT	Yes	
LI	Yes	Rates between fixed net operators are symmetrical.
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, etc.

Country/ Participant	Symmetry	Comments
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	
MK	Yes	
MT	Yes	Due to national characteristics interconnection is at layer 1. The FTR charge applicable to all those operators having an SMP in the wholesale fixed termination market is on a symmetrical basis.
NL	Yes	
NO	Yes	
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.
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. As of 1st February 2020 the FTRs for all 3 levels are equal to single rate of other operators.
SE	Yes	
SI	Yes	Based on national coverage of layer.
SK	Yes	The FTR is non-discriminatory for all operators without any exception.
XK	Yes	All operators have flat hierarchy of the network and all of them are interconnected at central level.
TR	No	

Annex 5 Number of active fixed telephony lines and market shares

Table 6

Country/ Participant	Operator	Number of lines	Total number of lines	Market share
AL	Albtelecom	158,786	211,150	75.20%
	Vodafone - Abcom	8,883		4.21%
	Albanian Satellite Communications	27,828		13.18%
	Rest of operators	15,653		7.41%
AT	A1 Telekom Austria	1,708,771	3,039,436	56.22%
	Operator 2	568,540		18.71%
	Operator 3	401,532		13.21%
	Operator 4	73,425		2.42%
	Operator 5	65,691		2.16%
	Operator 6	32,929		1.08%
	Rest of operators	188,548		6.20%
BE	Proximus	2,098,921	3,634,639	57.75%
	Rest of operators	1,535,718		42.25%
BG	Bulgarian Telecommunications Company	Confidential	901,289	Confidential
	A1 Bulgaria	Confidential		Confidential
	Telenor Bulgaria	Confidential		Confidential
	Rest of operators	51,543		5.72%
CH	Swisscom	N/A		N/A
CY	Cyta	Confidential	185,828	Confidential
	Epic	Confidential		Confidential
CZ	CETIN a.s.	Confidential	Confidential	36.08%
	Vodafone Czech Republic a.s.	Confidential		15.46%
	T-Mobile Czech Republic a.s.	Confidential		7.89%
	IPEX a.s.	Confidential		3.76%
	miniTEL s.r.o.	Confidential		3.68%
	Nej.cz s.r.o.	Confidential		2.63%
	Rest of operators	Confidential		30.50%
DE	Telekom Deutschland GmbH	17,480,000	38,280,000	45.66%
	Rest of operators	20,800,000		54.34%
DK	TDC	293,024	374,335	78.28%
	Telia	40,160		10.73%
	Telenor	23,469		6.27%
	Rest of operators	17,682		4.72%
EE	Telia	255,020	292,857	87.08%
	Elisa	7,228		2.47%
	Elisa Teleteenused	20,900		7.14%
	STV	9,709		3.32%
EL	OTE	2,683,750	4,859,182	55.23%
	FORTHNET	Confidential		Confidential
	HOL/VODAFONE	Confidential		Confidential

Country/ Participant	Operator	Number of lines	Total number of lines	Market share
	WIND	Confidential		Confidential
ES	Telefónica de España	8,281,006	19,079,910	43.40%
	Vodafone - Ono	4,000,817		20.97%
	Orange	3,816,939		20.01%
	Grupo MASMOVIL	1,778,238		9.32%
	Euskaltel	734,853		3.85%
	Rest of operators	468,057		2.45%
FI	DNA Oyj	Confidential	225,000	Confidential
	Elisa Oyj	Confidential		Confidential
	Telia Finland Oyj	Confidential		Confidential
	Rest of operators (weighted average)	Confidential		Confidential
FR	All operators	Confidential	37,917,000	Confidential
HR	HT	Confidential	1,282,954	Confidential
	OPTIMA	Confidential		Confidential
	A1	Confidential		Confidential
	Rest of operators	Confidential		Confidential
HU	Magyar Telekom	1,417,122	2,898,000	48.90%
	Digi	643,356		22.20%
	Vodafone	582,498		20.10%
	Rest of operators	255,024		8.80%
IE	Eircom	564,143	1,337,815	42.17%
	Virgin Media	288,325		21.55%
	Vodafone	187,906		14.05%
	Sky	171,817		12.84%
	Rest of operators	125,624		9.39%
IS	Siminn	77,046	113,826	67.69%
	Vodafone	36,780		32.31%
IT	TIM	8,774,247	19,946,854	43.99%
	Vodafone Italia	3,145,107		15.77%
	Wind tre	2,825,407		14.16%
	Fastweb	2,871,505		14.40%
	Linkem	682,502		3.42%
	Eolo	559,040		2.80%
	Rest of operators	1,089,046		5.46%
LI	Telecom Liechtenstein AG	Confidential	12,515	Confidential
	Backbone Solutions AG	Confidential		Confidential
	Nexphone AG	Confidential		Confidential
LT	Telia Lietuva, AB	193,646	207,488	93.33%
	CSC Telecom	12,575		6.06%
	Rest of operators	1,267		0.61%
LU	Post Luxembourg	171,200	263,440	65.00%
	Proximus Luxembourg S.A.	45,480		17.27%
	Luxembourg Online S.A.	18,760		7.12%

Country/ Participant	Operator	Number of lines	Total number of lines	Market share
	Rest of operators	28,000		10.63%
LV	Tet	Confidential	168,497	Confidential
	Latvijas mobilais telefons	Confidential		Confidential
	CSC Telecom	Confidential		Confidential
	Baltcom	Confidential		Confidential
	Rest of operators	Confidential		Confidential
ME	Crnogorski Telekom	102,229	191,474	53.39%
	Mtel	70,779		36.97%
	Telenor	2,233		1.17%
	Telemach	16,233		8.48%
MK	Makedonski Telekom	221,017	415,390	53.21%
	A1 Macedonia	161,077		38.78%
	Telekabel Robi	19,919		4.80%
	Rest of operators	13,377		3.22%
MT	Go plc	140,788	289,832	48.58%
	Melita Ltd	117,611		40.58%
	Epic Communications Ltd	27,649		9.54%
	Vanilla Telecoms Ltd	3,784		1.31%
NL	KPN	2,604,000	5,474,000	47.57%
	Vodafone Ziggo	2,292,000		41.87%
	Rest of operators	578,000		10.56%
NO	Telenor	182,285	330,920	55.08%
	Telia	54,383		16.43%
	Nextgentel	18,102		5.47%
	Rest of operators	76,150		23.01%
PL	ORANGE POLSKA S.A.	Confidential	3,244,329	Confidential
	UPC POLSKA sp. z o.o.	Confidential		Confidential
	NETIA SA	Confidential		Confidential
	T-MOBILE POLSKA S.A.	Confidential		Confidential
	MULTIMEDIA POLSKA SP. Z O.O.	Confidential		Confidential
	VECTRA S.A.	Confidential		Confidential
PT	MEO	Confidential	5,253,222	45.12%
	Grupo NOS Comunicações	Confidential		32.90%
	Vodafone	Confidential		18.59%
	Nowo	Confidential		2.54%
	Rest of operators	Confidential		0.85%
RO	Telekom Romania Communications S.A.	1,048,828	3,025,133	34.67%
	S.C. RCS&RDS S.A.	1,075,793		35.56%
	S.C. VODAFONE ROMANIA S.A.	728,374		24.08%
	ORANGE ROMÂNIA S.A.	117,292		3.88%
	Rest of operators	54,846		1.81%
RS	Telekom Srbija	Confidential	2,538,059	Confidential
	Orion telekom	Confidential		Confidential

Country/ Participant	Operator	Number of lines	Total number of lines	Market share
	Telenor	Confidential		Confidential
	Serbia Broadband	Confidential		Confidential
	Rest of operators	Confidential		Confidential
SE	Telia Company AB	689,126	1,478,610	46.61%
	Tele2 Sverige AB inkl ComHem	242,377		16.39%
	Telavox AB	144,989		9.81%
	Telenor Sverige AB	103,631		7.01%
	Wx3 Telecom AB	59,012		3.99%
	A3 Privat AB	36,750		2.49%
	Rest of operators	202,725		13.71%
SI	Telekom Slovenije	Confidential	Confidential	49.11%
	Telemach	Confidential		22.68%
	T-2	Confidential		15.25%
	A1 Slovenija	Confidential		9.19%
	Rest of operators	Confidential		3.77%
SK	Slovak Telekom, a.s	Confidential	684,235	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	4,696,407	12,306,954	38.16%
	TTNet	5,786,734		47.02%
	Superonline	218,564		1.78%
	Türksat	446,810		3.63%
	Rest of operators	1,158,439		9.41%
XK*	Telekom of Kosovo SH.A.	24,591	75,201	32.70%
	Ipko Telecommunications LLC	35,055		46.62%
	KUJTESA.NET SH.P.K.	53		0.07%
	mts d.o.o.	15,502		20.61%

Notes to table 6

AT: Number of lines as of end Q3/2020.

BE: Number of lines: data as of end 2020. The data represents the number of access channels to the fixed telephone networks and not the number of lines.

BG: Data on number of lines (network termination points) per operators as of 30.06.2021 should be treated as confidential.

CZ: The total number of lines as of 31st December 2020 is available as the latest information.

DE: number of lines are for end of year 2020.

DK: number of lines is of end of H1 2020.

FI: Market shares as of 01.01.2021. Volumes are confidential.

FR: The number of lines is the data at 31st March 2021.

IE: Number of Lines and Market Share has been populated (as of 30 June 2021).

IT: Number of lines refer to March 2021 (most updated available data).

MT: Data reflects the situation as at Q2 2021. Data includes the number of channels.

NO: Number of subscribers are provided as of 1 January 2021. The number of subscribers per 30 June 2021 will not be available before Q4 2021.

PL: The data about number of lines and market share as of 31 Dec 2020.

RS: Number of lines are as of 31/12/2020. 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 number of lines by operator is confidential.

SE: PTS has no information of the number of lines. Instead the number of subscriptions has been used, as of 31st December 2020. PTS has no separate information regarding market shares (number of subscriptions) for single and double segments, respectively. The market shares represent the wholesale level, i.e. including WLR (WLR is considered as belonging to the incumbent).

SI: Information on the number of subscribers per operator is confidential. Absolute number of all subscribers is confidential if this number is published with market shares of operators together.

TR: The number of lines specified in the above table for alternative network operators includes the number of wholesale line rental and VoIP subscribers. Number of Lines can be given as the total number of lines including layer 1, layer 2 and layer 3 termination points.

Annex 6 Average MTR per operator as of 30 June 2021

Table 7

Country/ Participant	Operator	Average effective prices (eurocents)	Mobile Subscribers	Total mobile subscribers	Real Mkt Shares
AL	One Telecommunications	0.9026	911,226	2,461,784	37.01%
	Vodafone Albania	0.9026	1,142,180		46.40%
	Albtelecom	0.9026	408,378		16.59%
AT	A1 Telekom Austria	0.8049	Confidential	10,838,185	Confidential
	T-Mobile Austria	0.8049	Confidential		Confidential
	Hutchison Drei Austria	0.8049	Confidential		Confidential
	Rest of the operators	0.8049	Confidential		Confidential
BE	Proximus	0.9900	Confidential	11,514,555	Confidential
	Orange	0.9900	Confidential		Confidential
	Telenet	0.9900	Confidential		Confidential
	Full MVNO	0.9900	Confidential		Confidential
BG	A1 Bulgaria	0.7158	Confidential	7,884,959	Confidential
	Telenor Bulgaria	0.7158	Confidential		Confidential
	BTC	0.7158	Confidential		Confidential
	Rest of the operators	0.7158	Confidential		Confidential
CH	Swisscom	2.5506	4,690,000	8,721,313	53.78%
	Sunrise	3.0060	2,178,100		24.97%
	Salt	3.0060	1,853,213		21.25%
CY	CYTA	0.1700	Confidential	1,260,491	Confidential
	Epic Ltd	0.1700	Confidential		Confidential
	Primetel PLC	0.1700	Confidential		Confidential
	Cablenet Communication Systems Plc	0.1700	Confidential		Confidential
CZ	T-Mobile Czech Republic a.s.	0.9673	Confidential	Confidential	37.70%
	O2 Czech Republic a.s.	0.9673	Confidential		27.42%
	Vodafone Czech Republic a.s.	0.9673	Confidential		26.52%
	Nordic Telecom s.r.o.	0.9673	Confidential		0.09%
	Rest of the operators	0.9673	Confidential		8.28%
DE	Telekom Deutschland GmbH	0.7800	N/A	107,500,000	N/A
	Vodafone GmbH	0.7800			
	Telefónica Germany GmbH & Co. OHG	0.7800			

Country/ Participant	Operator	Average effective prices (eurocents)	Mobile Subscribers	Total mobile subscribers	Real Mkt Shares
DK	TDC	0.5165	2,764,727	7,214,941	38.32%
	Telenor	0.5165	1,453,177		20.14%
	Telia	0.5165	1,151,239		15.96%
	Hi3G	0.5165	1,169,642		16.21%
	Rest of the operators	0.5165	676,156		9.37%
EE	Telia Eesti AS	0.7000	826,311	1,925,789	42.91%
	Tele2 Eesti AS	0.7000	465,565		24.18%
	Elisa Eesti AS	0.7000	633,913		32.92%
EL	Cosmote	0.6220	Confidential	11,200,147	48.23%
	Vodafone	0.6220	Confidential		30.92%
	WIND	0.6220	Confidential		20.85%
ES	Movistar	0.6400	16,336,437	55,644,651	29.36%
	Orange	0.6400	12,950,228		23.27%
	Vodafone	0.6400	12,236,155		21.99%
	Masmovil	0.6400	9,560,316		17.18%
	Rest of the operators	0.6400	4,561,515		8.20%
FI	DNA Oyj	0.8200	Confidential	7,120,000	Confidential
	Elisa Oyj	0.8200	Confidential		Confidential
	Telia Finland Oyj	0.8200	Confidential		Confidential
	Ålcom	0.8200	Confidential		Confidential
	Rest of the operators	0.8200	Confidential		Confidential
FR	All operators (MNOs and MVNOs)	0.7400	Confidential	78,886,570	Confidential
HR	HT	0.5977	Confidential	4,404,102	Confidential
	A1	0.5977	Confidential		Confidential
	Telemach	0.5977	Confidential		Confidential
HU	Magyar Telekom	0.4823	Confidential	9,981,973	Confidential
	Telenor	0.4823	Confidential		Confidential
	Vodafone	0.4823	Confidential		Confidential
	DIGI	0.4823	Confidential		Confidential
	Netfone	0.4823	Confidential		Confidential
	Tarr	0.4823	Confidential		Confidential
IE	Vodafone	0.4300	1,857,834	5,278,715	35.19%
	Three	0.4300	1,577,993		29.89%
	Eircom	0.4300	1,179,832		22.35%
	Tesco	0.4300	429,566		8.14%
	Virgin	0.4300	123,712		2.34%
	Lycamobile / others	0.4300	109,778		2.08%
IS	Siminn	0.6778	173,788	474,825	36.60%
	Vodafone	0.6778	127,138		26.78%
	Nova	0.6778	156,242		32.91%
	Hringdu	0.6778	17,657		3.72%

Country/ Participant	Operator	Average effective prices (eurocents)	Mobile Subscribers	Total mobile subscribers	Real Mkt Shares
IT	Wind Tre	0.6700	21,202,430	77,643,964	27.31%
	TIM	0.6700	20,457,801		26.35%
	Vodafone Italia	0.6700	18,317,944		23.59%
	Iliad Italia	0.6700	7,541,000		9.71%
	PostePay	0.6700	4,468,133		5.75%
	Rest of the operators	0.6700	5,656,656		7.29%
LI	Swisscom (Schweiz) AG	0.7014	Confidential	17,565	Confidential
	Telecom Liechtenstein AG	0.7014	Confidential		Confidential
	Salt (Liechtenstein) AG	0.7014	Confidential		Confidential
LT	Tele2	0.7600	1,956,766	4,718,570	41.47%
	Telia Lietuva, AB	0.7600	1,384,593		29.34%
	Bite Lietuva	0.7600	1,216,915		25.79%
	Rest of the operators	0.7600	163,013		3.45%
LU	Post Telecom S.A.	0.8900	411,500	885,200	46.49%
	Proximus Luxembourg S.A.	0.8900	293,100		33.11%
	Orange S.A.	0.8900	128,500		14.52%
	Rest of the operators	0.8900	52,100		5.89%
LV	Bite Latvija, SIA	0.8868	Confidential	2,163,628	Confidential
	Latvijas Mobilais Telefons	0.8868	Confidential		Confidential
	Tele2, SIA	0.8868	Confidential		Confidential
ME	Telenor	0.6200	332,884	1,065,261	31.25%
	Crnogorski Telekom	0.6200	363,893		34.16%
	Mtel	0.6200	368,484		34.59%
MK	Makedonski Telekom	1.0234	888,269	1,872,021	47.45%
	A1 Macedonia	1.0234	925,937		49.46%
	Lajkamobajl	1.0234	35,764		1.91%
	Telelabel TRD ROBI	1.0234	21,559		1.15%
	Green Mobile	1.0234	492		0.00%
MT	Go plc	0.4045	245,664	642,060	38.26%
	Melita plc	0.4045	160,455		24.99%
	Epic Communications Ltd	0.4045	235,941		36.75%
NL	KPN	0.5810	6,360,000	22,270,000	28.56%
	Vodafone Ziggo	0.5810	5,190,000		23.30%
	T-Mobile/Tele2	0.5810	6,655,000		29.88%
	Rest of the operators	0.5810	4,065,000		18.25%
NO	Telenor	0.3170	2,691,497	5,825,584	46.20%
	Telia	0.3170	2,048,542		35.16%
	ICE	0.3170	639,390		10.98%

Country/ Participant	Operator	Average effective prices (eurocents)	Mobile Subscribers	Total mobile subscribers	Real Mkt Shares
	Com4	0.3170	0		0.00%
	Rest of the operators	0.0000	446,155		7.66%
PL	P4	0.9489	Confidential	49,350,724	Confidential
	Orange Polska	0.9489	Confidential		Confidential
	Polkomtel	0.9489	Confidential		Confidential
	T-Mobile Polska	0.9489	Confidential		Confidential
	Virgin Mobile Polska	0.9489	Confidential		Confidential
	Premium Mobile	0.9489	Confidential		Confidential
	Rest of the operators	0.9489	Confidential		Confidential
PT	MEO	0.3600	Confidential	11,877,461	Confidential
	NOS	0.3600	Confidential		Confidential
	Vodafone	0.3600	Confidential		Confidential
	Rest of the operators	0.3600	Confidential		Confidential
RO	Vodafone Romania S.A.	0.7600	6,572,467	22,542,849	29.16%
	Orange Romania S.A.	0.7600	8,488,601		37.66%
	Telekom Romania Mobile Communications S.A.	0.7600	2,772,941		12.30%
	RCS & RDS S.A.	0.7600	3,785,828		16.79%
	Telekom Romania Communications S.A.	0.7600	908,023		4.03%
	Rest of the operators	0.0000	14,989		0.07%
RS	Telekom Srbija (MTS)	1.2163	Confidential	8,327,640	Confidential
	Telenor	1.2163	Confidential		Confidential
	A1 (former Vip mobile)	1.2163	Confidential		Confidential
SE	Telia Company	0.1686	4,938,392	14,275,159	34.59%
	Tele2	0.1686	3,903,156		27.34%
	Telenor Sverige	0.1686	2,753,526		19.29%
	Hi3G Access	0.1686	2,152,769		15.08%
	Lycamobile	0.1686	152,774		1.07%
	Telavox	0.1686	99,357		0.70%
	Rest of the operators	0.1686	275,185		1.93%
SI	Telekom Slovenije	0.8820	Confidential	Confidential	37.97%
	A1 Slovenija	0.8820	Confidential		31.24%
	Telemach	0.8820	Confidential		23.98%
	T-2	0.8820	Confidential		6.81%
SK	O2 Slovakia, s.r.o.	0.8180	Confidential	6,227,320	Confidential
	Orange Slovensko, a.s.	0.8180	Confidential		Confidential

Country/ Participant	Operator	Average effective prices (eurocents)	Mobile Subscribers	Total mobile subscribers	Real Mkt Shares
	Slovak Telekom, a.s.	0.8180	Confidential		Confidential
	SWAN Mobile, a.s.	0.8180	Confidential		Confidential
TR	Turkcell	0.2468	31,686,466	77,641,142	40.81%
	Vodafone	0.2547	24,056,955		30.98%
	TT Mobil (Avea)	0.2922	21,897,721		28.20%
XK*	Telekomi	0.9460	1,139,384	1,975,134	57.69%
	Ipko	0.9460	804,880		40.75%
	dukagjini telecomm	0.9460	0		0.00%
	mts d.o.o.	0.9460	30,870		1.56%

Notes to Table 7

AT: Individual operator subscriber data are strictly confidential.

BG: Data as of 30.06.2021. Individual data on number of subscribers/M2M SIM Cards by operators is confidential. M2M, M2P and data-only SIMs cards are not included in the figure of total mobile subscribers.

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 2020 is available as the latest information. Individual data on number of subscribers/M2M SIM Cards by operators is confidential.

DE: The number of subscribers (not including M2M and IoT) and M2M SIM cards is for end of year 2020 and is not available by individual operator.

DK: Total subscribers is derived as of end of H2 2020.

FI: Subscriber and M2M figure per operator are confidential. Subscriber figures per 01.01.2021.

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

HU: Subscribers and M2M data are confidential.

IS: Subscriber data from the end of 2020 - the latest available.

IT: Subscribers and M2M SIM cards refer to March 2021 (most updated available data).

LT: Data as of Q1 2021. These M2M SIM cards are used for M2M services only.

LU: Since 01.02.2021: ILR /T21/2 Regulation of 18 January, 2021 related to the definition of the relevant market for the wholesale supply of voice call termination on individual mobile networks (market 2/2014). Data as of 31.12.2020.

MT: Data reflects the situation as at Q2 2021.

NO: Number of subscribers are provided as of 1 January 2021. The total number of subscribers per 30 June 2021 will be available in Q4 2021.

PL: The data about subscribers and M2M cards are valid as of 31st Dec 2020. The data on individual number of subscribers is confidential.

PT: The individual number of subscribers is confidential.

RS: Information on individual number of subscribers by operator is confidential. Number of subscribers are as of Q2 2021 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 refer 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: Subscriber numbers and numbers for M2M SIM Cards are given for 31.12.2020, the latest point in time with available data.

SI: Absolute number of subscribers per operator is confidential. Absolute number of all subscribers is confidential if this number is published with market shares of operators together.

SK: The number of subscribers per operator has to be treated as confidential.

Annex 7 Average mobile termination revenue per minute per country

Notes to Figure 17

AL: Total revenues include revenues from national and international terminated calls, and total minutes include minutes terminated from national and international calls.

BG: The Indicator "Total MTR revenue" includes revenues from traffic originated from national fixed networks and terminated in mobile networks during 2020. 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 2020. 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.

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

DK: The Danish Business Authority does not collect this information.

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

HU: Data not available.

IS: Regulated rate of 1,01 ISK/min applies to calls originating within the EEA.

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. MTRs for calls that are originated from abroad are not regulated, and different from MTRs for calls that are originated from national operators.

PT: Total MTR minutes also includes international traffic originated outside EEA that is not subject to price control obligation. For this reason, the average revenue per minute is higher than the current maximum regulated value for EEA traffic.

RS: Data provided are for the whole 2020 and include 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.

SE: Both revenues and minutes include international mobile voice traffic termination.

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 models implemented to calculate MTRs

Table 8

Jul-21	COST ACCOUNTING MODEL			Period 1 to 5 is not applicable (NA ¹⁷) for EU countries				
	Model	Rate status	When a tariff adopted by a final decision and meeting the standards of the TR Recommendation has been or will be firstly applied?	Period 1 - From 01/07/2021 until 31/12/2021	Period 2 - From 01/01/2022 until 30/06/2022	Period 3 - From 01/07/2022 until 31/12/2022	Period 4 - From 01/01/2023 until 30/06/2023	Period 5 - From 01/07/2023 until 31/12/2023
AL	Benchmark BU-LRIC	adopted	16.06.2020	0.9026	0.9026	0.9026	0.9026	0.9026
AT	Pure BU-LRIC	adopted		NA	NA	NA	NA	NA
BE	Pure BU-LRIC	adopted	01.01.2013	NA	NA	NA	NA	NA
BG	Pure BU-LRIC	adopted	01.12.2016	NA	NA	NA	NA	NA
CH		not regulated	not applicable					
CY	Pure BU-LRIC	adopted	01.01.2018	NA	NA	NA	NA	NA
CZ	Pure BU-LRIC	adopted	01.07.2013	NA	NA	NA	NA	NA
DE	Pure BU-LRIC	adopted	01.01.2020	NA	NA	NA	NA	NA
DK	Pure BU-LRIC	adopted		NA	NA	NA	NA	NA
EE	Benchmark BU-LRIC	adopted	18.12.2020	NA	NA	NA	NA	NA
EL	Pure BU-LRIC	adopted	01.01.2013	NA	NA	NA	NA	NA
ES	Pure BU-LRIC	adopted	05.10.2012	0.6400	0.5500	0.5500	0.4000	0.4000
FI	Other (FDC/FAC)	adopted		NA	NA	NA	NA	NA
FR	Pure BU-LRIC	adopted	01.01.2013	NA	NA	NA	NA	NA
HR	Pure BU-LRIC	adopted	01.01.2015	0.5977	NA	NA	NA	NA
HU	Pure BU-LRIC	adopted	01.07.2021	0.4823	0.4700	0.4700	0.4000	0.4000
IE	Pure BU-LRIC	adopted	01.09.2016	NA	NA	NA	NA	NA
IS	Benchmark BU-LRIC	adopted		0.6778	0.4966	0.4966	NA	NA

¹⁷ Max. Eurorates apply from 01.07.2021.

Jul-21	COST ACCOUNTING MODEL			Period 1 to 5 is not applicable (NA ¹⁷) for EU countries				
	Model	Rate status	When a tariff adopted by a final decision and meeting the standards of the TR Recommendation has been or will be firstly applied?	Period 1 - From 01/07/2021 until 31/12/2021	Period 2 - From 01/01/2022 until 30/06/2022	Period 3 - From 01/07/2022 until 31/12/2022	Period 4 - From 01/01/2023 until 30/06/2023	Period 5 - From 01/07/2023 until 31/12/2023
IT	Pure BU-LRIC	adopted	01.07.2013	0.6700	NA	NA	NA	NA
LI	Benchmark (BU-LRIC)	adopted	01.01.2021	0.7014				
LT	Benchmark (BU-LRIC)	adopted	01.04.2016	NA	NA	NA	NA	NA
LU	Pure BU-LRIC	adopted	18.01.2021	NA	NA	NA	NA	NA
LV	Pure BU-LRIC	adopted	26.04.2017	0.8868				
ME	Other (TD-LRIC)	adopted		0.6200				
MK	Pure BU-LRIC	adopted	2010	1.0234	1.0234	1.0234		
MT	Pure BU-LRIC	adopted		NA	NA	NA	NA	NA
NL	Pure BU-LRIC	adopted	01.07.2017	0.5810	0.5810	0.5810	0.5810	0.5810
NO	Pure BU-LRIC	adopted	01.07.2015	0.3170				
PL	Pure BU-LRIC	adopted	01.07.2013	NA	NA	NA	NA	NA
PT	Pure BU-LRIC	adopted	31.12.2012	NA	NA	NA	NA	NA
RO	Benchmark BU-LRIC	adopted	01.04.2014	NA	NA	NA	NA	NA
RS	Benchmarking (other)			1.2163				
SE	Pure BU-LRIC	adopted	01.07.2013	0.1686	0.1686	0.1686	NA	NA
SI	Pure BU-LRIC	adopted	01.08.2020	NA	NA	NA	NA	NA
SK	Pure BU-LRIC	adopted	01.08.2019	NA	NA	NA	NA	NA
TR	Confidential							
XK*	Benchmarking (other)	adopted		0.9460	0.8460			

Notes to Table 8:

AL: The MTRs defined above for periods 2-5 will remain in power until next AKEP Board Decision on termination rates.

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 to 01/01/2019 – 0,014 BGN/minute and from 01/01/2020 - 0.014 BGN/minute.

According to CRC's Decision 266/23.07.2020, until the implementation of the Delegated Act setting a single maximum Union-wide mobile voice termination rate, all undertakings designated as having SMP on mobile call termination market are obliged to apply cost-oriented call termination rates (equal to BGN/minute 0,014), determined by BU-LRIC model adopted with CRC's Decision 585/24.11.2016.

No MTRs peak/off-peak differentiation. Data as of 30.06.2021.

CH: MTRs are not regulated in 2021.

DE: Max. Eurorates apply from 01.07.2021.

FI: Before the implementation of the Delegated Act on Termination rates (1 July 2021), DNA, Elisa and Telia had commercially agreed on glide path for termination rates. The last step on the glide path was 1 December 2020 MTR 0,82 €cent/min. Ålcom followed the same glide path.

HR: Please note that MTRs are regulated only for the calls originated on A numbers belonging to the EU/EEA operators and terminated into the individual fixed networks in Croatia.

IS: Benchmark for 2022 carried out late summer 2021, published for national consultation in august. Decision will be taken before end of October and valid for the year 2022.

IT: As regard MTR for period 1, Italy is in the list of countries where a different MTR with respect to the maximum Union-wide rate is applied by derogation. Indeed, the rate of 0,67 €cent/min has been approved with a decision of 2018 and is lower than the maximum rate established with the Delegated Regulation for 2021.

LI: The Eurorate Regulation is in the phase of incorporation to the EEA-agreement.

LU: ILR /T21/2 Regulation of 18 January, 2021 related to the definition of the relevant market for the wholesale supply of voice call termination on individual mobile networks (market 2/2014).

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.

NO: The regulated MTR will be applicable until the Delegated Regulation is incorporated into the EEA Agreement.

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.

SK: RU does not apply any glide path.

XK: The benchmarking methodology used to set the MTR is not fully in line with the Recommendation. The glide path for MTR was made by using average MTR of EU member states and MTR from Western Balkan Countries.

Annex 9 SMS TRs per country as of 30 June 2021

Table 9

Country/ Participant	Operator	SMS TR as of 30 June 2021 (eurocents)	Volumes of SMS globally sent in 2020 ¹⁸ (millions)	Number of subscribers as of 31.12.2020 ¹⁹ (millions)
AL	Telekom Albania	0.8132	660.605	2.619
	Vodafone Albania			
	Albtelecom			
AT	A1 Telekom Austria	1.4769	1,455.936	13.005
	T-Mobile Austria			
	Hutchison Drei Austria			
BE	Proximus	4.9600	14,523.206	11.996
	Orange			
	Telenet			
BG	A1 Bulgaria	Confidential	339.105	7.946
	Telenor Bulgaria			
	BTC			
CH	Swisscom-Salt	Confidential	921.622	8.721
	Swisscom-Sunrise			
	Salt-Sunrise			
CY	CYTA	Confidential	753.101	1.099
	Epic LTD			
CZ	T-Mobile Czech Republic a.s.	Confidential	6,430.994	14.600
	O2 Czech Republic a.s.			
	Vodafone Czech Republic a.s.			
	Nordic Telecom s.r.o.			
DE	Telekom Deutschland GmbH	N/A	7,000.000	143.800
	Vodafone GmbH			
	Telefónica Germany GmbH & Co. OHG			
DK	TDC	N/A	4,886.719	8414.997
	Telenor			
	Telia			
	3 (Hi3G)			
EE	Telia Eesti AS	2.6000	788.000	1925.000
	Tele2 Eesti AS			
	Tele2 Eesti AS			
	Elisa Eesti AS			

¹⁸ Volume data refers to 2020, unless otherwise stated in the Notes of Annex 9

¹⁹ Including M2M, M2P and data-only SIMs cards.

Country/ Participant	Operator	SMS TR as of 30 June 2021 (eurocents)	Volumes of SMS globally sent in 2020 ¹⁸ (millions)	Number of subscribers as of 31.12.2020 ¹⁹ (millions)
	Elisa Eesti AS			
EL	Cosmote	Confidential	2,212.792	11.413
	Vodafone			
	WIND			
ES	Movistar	Confidential	755.610	55.645
	Vodafone			
	Orange			
	Masmovil			
FI	DNA Oyj	N/A	1,433.000	9.250
	Elisa Oyj			
	Telia Finland Oyj			
	Ålcom			
FR	All operators (MNOs and MVNOs)	1.0000	134,026.200	75.000
MK	Makedonski Telekom	3.2488	280.409	1.862
	A1			
HR	HT	N/A	1,496.629	4.376
	A1			
	Tele2			
HU	Magyar Telekom	Confidential	1,167.900	10.743
	Telenor			
	Vodafone			
IE	Vodafone	N/A	2,750.000	7.100
	Three Ireland Group			
	Eircom Group Mobile			
	Tesco Mobile			
IS	Siminn	2.5835	187.997	0.476
	Vodafone			
	Nova			
	Hringdu			
IT	Telecom Italia	Confidential	4,266.159	77.581
	Vodafone			
	WindTre			
	Iliad			
	Poste Pay			
	Fastweb			
	BT Italia			
	Digi Italy			
	Lycamobile			
	Welcome Italia			
	Noverca			
LI	Salt (Liechtenstein) AG	0.0000	0.962	0.018

Country/ Participant	Operator	SMS TR as of 30 June 2021 (eurocents)	Volumes of SMS globally sent in 2020 ¹⁸ (millions)	Number of subscribers as of 31.12.2020 ¹⁹ (millions)
	Telecom Liechtenstein AG	5.8298		
	Swisscom	8.1982		
LT	Tele2	0.0000	2,870.000	4.7
	Telia Lietuva, AB	0.0000		
	Bite Lietuva	0.0000		
LU	Post Télécom	N/A	412.000	0.885
	Tango			
	Orange			
LV	Bite Latvija	N/A	1,140.967	2.051
	Latvijas Mobilais Telefons			
	Tele2			
	Zetcom			
ME	Telenor	1.0000	255.900	1.080
	Crnogorski Telekom			
	Mtel			
MT	Go Mobile	1.6104	180.001	0.633
	Melita Mobile	1.9566		
	Vodafone Mobile	3.4216		
NL	KPN	N/A	2,696.000	22.270
	Vodafone Ziggo			
	T-Mobile			
	Tele2			
NO	Telenor	3.4676	4,311.749	5.826
	Telia			
	ICE			
PL	Polkomtel sp. z o.o.	1.1060	40,896.737	49.351
	P4 sp. z o.o.			
	T-Mobile Polska S.A.			
	Orange Polska S.A.			
PT	MEO	Confidential	11,393.857	11.855
	NOS			
	Vodafone			
RO	VODAFONE ROMANIA S.A.	Confidential	4,299.000	22.588
	ORANGE ROMANIA S.A.			
	TELEKOM Romania Mobile Communications S.A.			
	RCS & RDS S.A.			
	Telekom Romania Communications S.A.			
	Iristel			
	Compatel			
RS	Telekom Srbija (MTS)	1.7011	5,522.000	8.260
	Telenor			

Country/ Participant	Operator	SMS TR as of 30 June 2021 (eurocents)	Volumes of SMS globally sent in 2020 ¹⁸ (millions)	Number of subscribers as of 31.12.2020 ¹⁹ (millions)
	A1 (former Vip mobile)			
SE	Telia Company	N/A	0.000	0.000
	Tele2			
	Telenor			
	Hi3G			
	Lycamobile			
	Telavox AB			
SI	Telekom Slovenije	N/A	Confidential	Confidential
	A1 Slovenija			
	Telemach			
	T-2			
SK	Slovak Telekom, a.s.	2.5000	2.5604	6.2273
	Orange Slovensko, a.s.			
	O2 Slovakia s.r.o.			
	SWAN Mobile, a.s.			
TR	Turkcell	0.0424	42,047.344	82.128
	Vodafone	0.0424		
	TT Mobil (Avea)	0.0464		
XK*		N/A	0.000	0.000

Notes to Table 9

AL: The reported SMS termination rates are effective since 01.04.2014, based on AKEP market analysis and SMP decisions for mobile SMS termination. There are no differences between Peak time and Off peak time.

BG: The SMS call termination rates data is confidential.

CH: The rates data are confidential. Only interpersonal SMS are included in the volume. The number of subscribers is without M2M, M2P and data-only SIM cards.

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. Provided data are confidential.

Note: 14,600 according to the same methodology as last year, i.e. incl. M2M and data-only SIM cards, excl. M2M and data-only SIM it would be 13,000 as provided for the MTR Report.

DE: No data available since SMS call termination rates are not regulated in Germany.

DK: The Danish Business Authority do not regulate SMS termination.

FI: SMS termination rates are not regulated in Finland.

HR: SMS call termination rates are not regulated.

HU: SMS termination rate in national currency has not changed. These data are not regulated and thus confidential.

IE: SMS termination rate is not available.

IT: SMS termination rates are equal to those sent for questionnaire referring to 2020, since more updated data are not available.

LT: SMS call termination rates are not regulated.

LU: SMS call termination rates are not regulated.

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

MK: SMS call termination rates are not regulated.

MT: Data reflects the situation as at Q2 2021.

PL: Data reflects the situation as of 31st December 2020.

PT: Information on the SMS call termination rates per operator is confidential.

RO: Information on the SMS termination rates per operator is confidential.

SE: SMS call termination rates are not regulated.

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 the requirement for 0.0250 EUR rate.

TR: The cost-based tariff control obligation applied for the SMS/MMS termination service will be deregulated as of 01 April 2022.

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
HR	Croatia
HU	Hungary
IE	Ireland
IS	Iceland
IT	Italy
LI	Liechtenstein
LT	Lithuania
LV	Latvia
LU	Luxembourg
ME	Montenegro
MK	The Republic of North Macedonia
MT	Malta
NL	Netherlands
NO	Norway
PL	Poland
PT	Portugal
RO	Romania
RS	Serbia
SE	Sweden
SI	Slovenia
SK	Slovakia
TR	Turkey
XK*	Kosovo*

Table 11 – Exchange Rates²⁰

COUNTRY	1 EURO
AL	122,9773
BG	1,9558
CH	1,0978
CZ	25,6380
DK	7,4542
HR	7,5284
HU	354,5500
IS	149,0200
LI	1,0978
MK	61,5619
NO	10,0934
PL	4,5208
RO	4,9240
RS	117,5740
SE	10,1414
TR	10,1297

²⁰ 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
LRR	Lowest Regulated Rate