

# **Termination rates at European level**

**July 2020**

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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 Statistics and Indicators 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 2020, referring – if not differently indicated – to data as of 1st July 2020. It includes rates from the thirty eight (38) NRAs<sup>1</sup> that provided responses to our request.

As of July 2020, the situation regarding TRs in Europe can briefly be described as follows (see also Figures 1-3):

- The simple average of the lowest regulated FTR of incumbents at the European level (all 38 countries/participants Avg (S)) stands at 0.3111 eurocent per minute.
- The simple average of the lowest regulated FTR of European Union incumbents (only EU member states Avg EU27(S)) stands at 0.1994 eurocent per minute.
- The simple average of MTR at the European level (all 38 countries/participants, (Avg (S)) stands at 0.8182 eurocent per minute, whereas the weighted average<sup>2</sup> (Avg (W)) at European level is estimated at 0.7222 eurocent per minute.

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<sup>1</sup> 27 EU member states plus 4 EFTA states (Switzerland, Iceland, Norway and Liechtenstein) and 5 economies of the Western Balkans (Albania, Montenegro, North Macedonia, Serbia and Kosovo\*), Turkey and the UK data is kept from the previous Termination Rates Report.

The United Kingdom withdrew from the European Union on 31 January 2020 with the transition period until 31 December 2020 (an official UK exit from the EU is from 1st of January 2021).

\* 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.

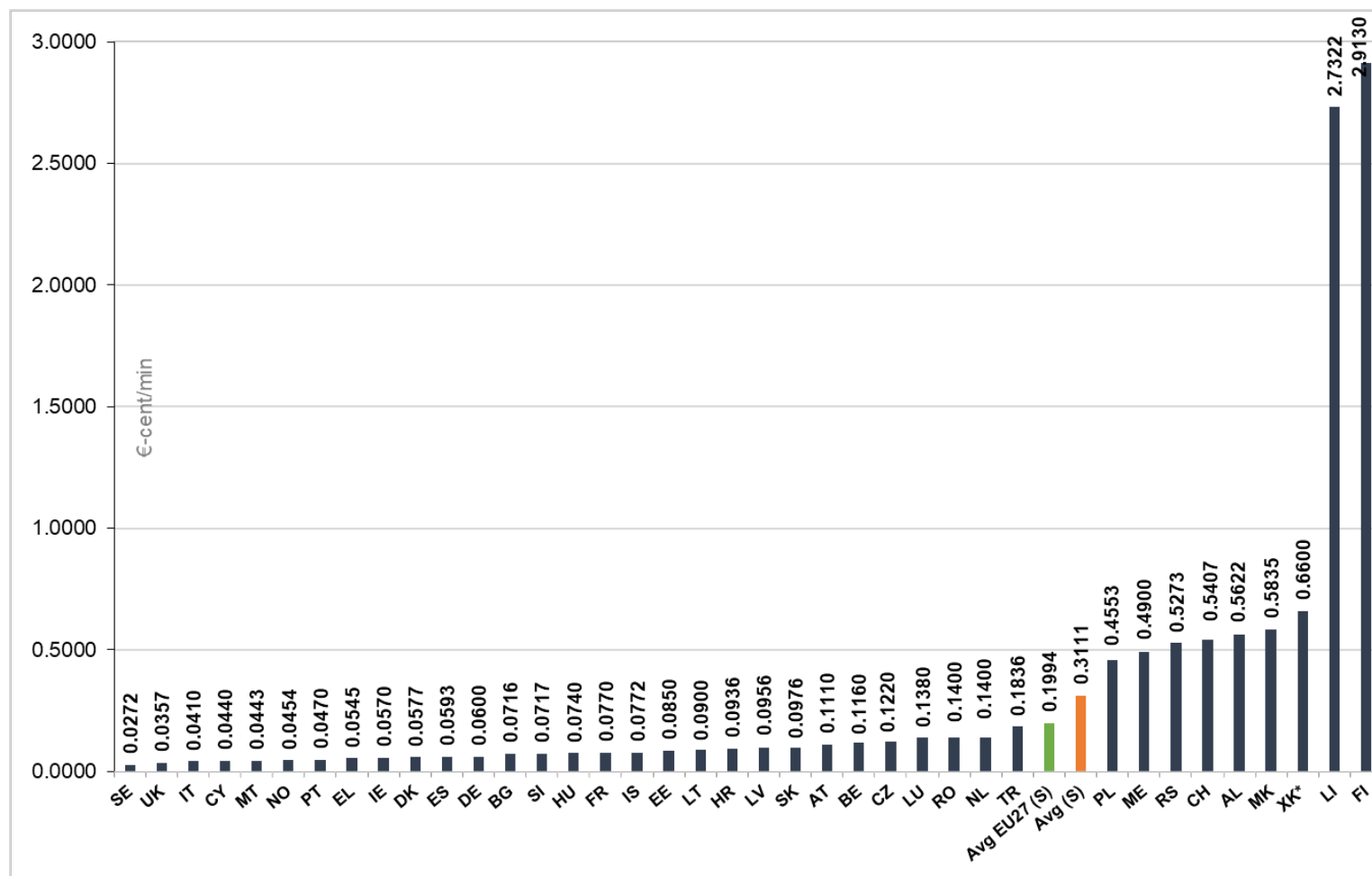
<sup>2</sup> The weighted averages weigh each country's average rate with the share of the country's subscribers (total subscribers per country / total subscribers in all countries).

- The simple average of MTR at the EU level (only EU member states, EU Avg (S)) stands at 0.6916 eurocent per minute, whereas the weighted average at EU level (EU Avg (W)) is estimated at 0.7574 eurocent per minute.
- The simple average of SMS TR at the European level is 2.1841 eurocent per SMS.
- Since not all EU member states report their SMS TR, no averages at the EU level could be calculated.

For non-EUR countries, the average exchange rate for the second quarter of the year (Q2 2020) 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 2020 (eurocent per minute of service)

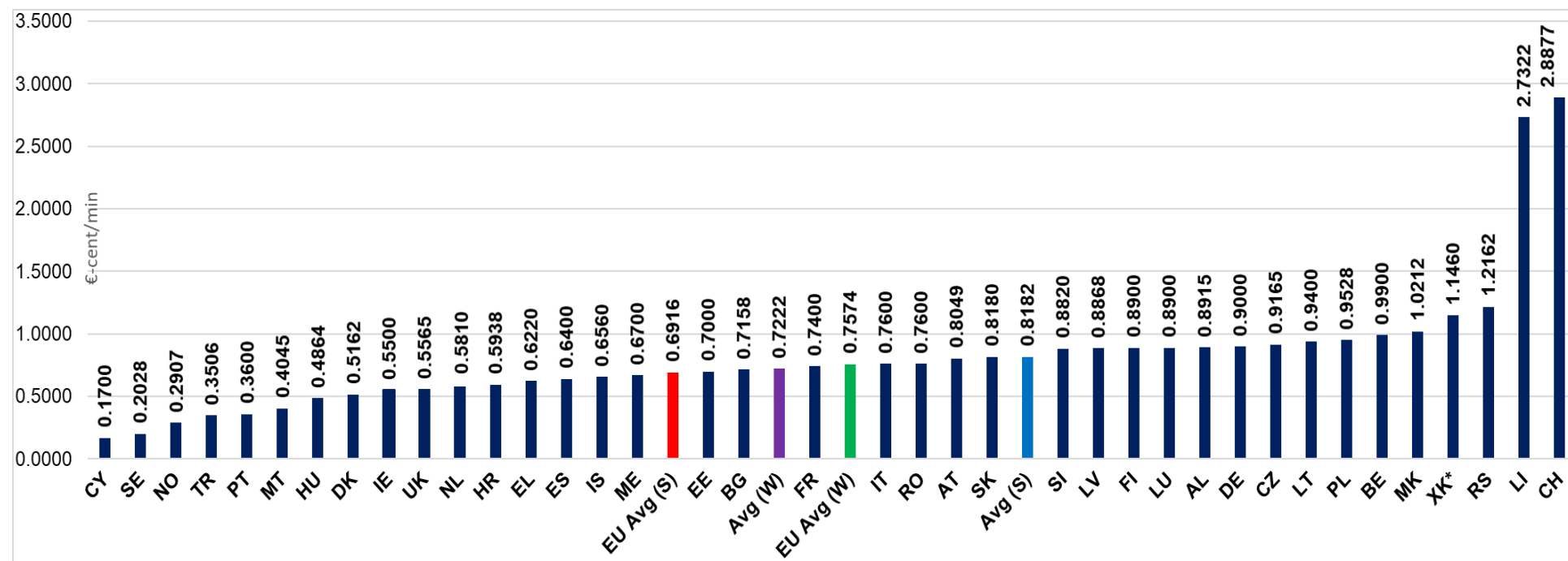
Figure 1 FTRs



Source: NRAs, BEREC

## MTR per country – July 2020 (eurocent per minute of service)

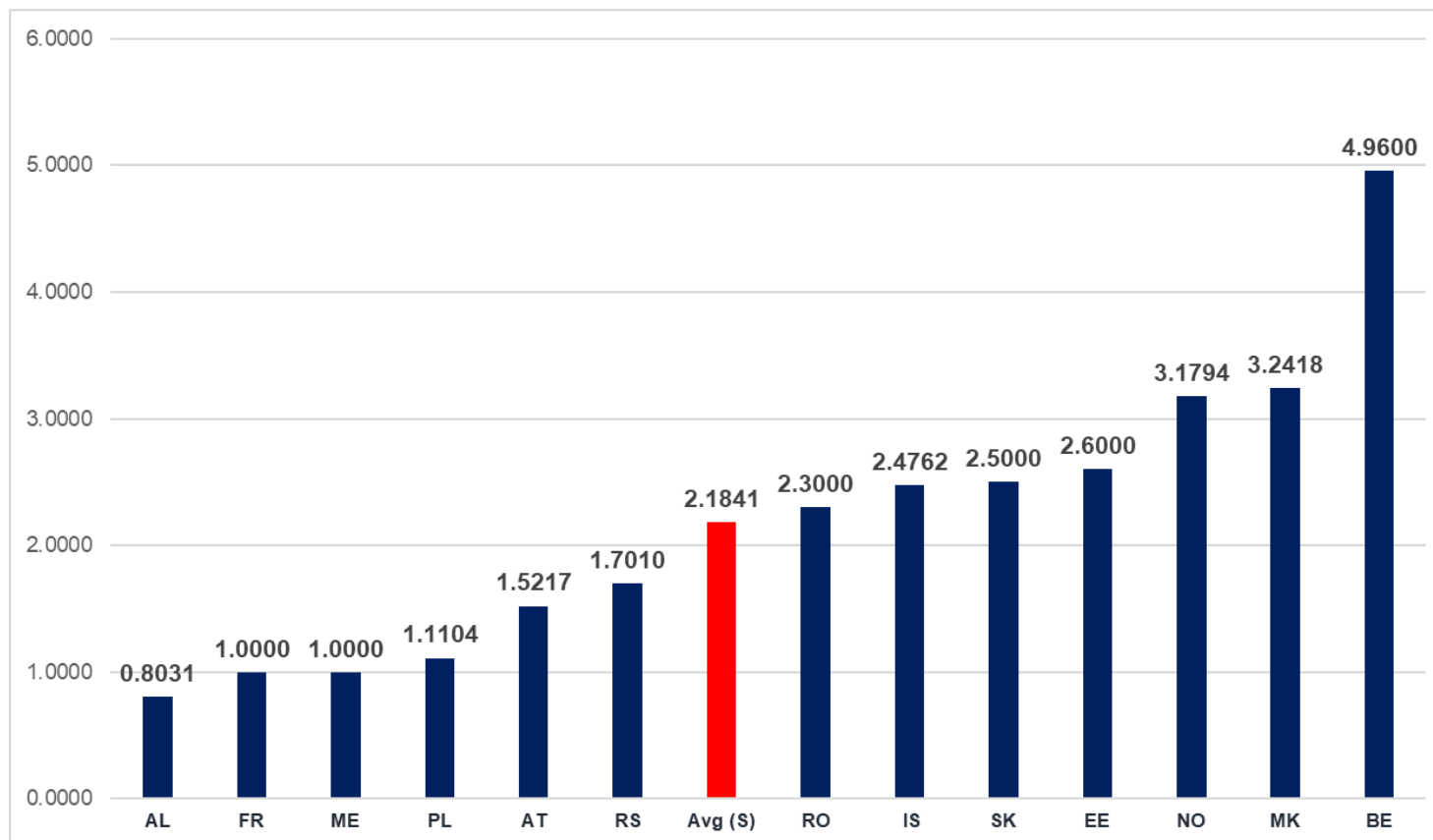
Figure 2 MTRs



Source: NRAs, BEREC

## SMS TR per country – July 2020 (eurocent 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:

- 1) In some cases, the termination rate is a two-part tariff, i.e. composed of a variable part (to be paid for each minute of a call) plus a set-up or fixed part (to be paid for each call). In other cases, termination prices consist only of the variable part.
- 2) Interconnection services in fixed networks are provided at different levels in the hierarchy of the incumbents' networks, called layers. Even though some peculiarities in specific countries are present, in general three main layers for interconnection are defined:
  - i) layer 1<sup>3</sup>, 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

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<sup>3</sup> 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.

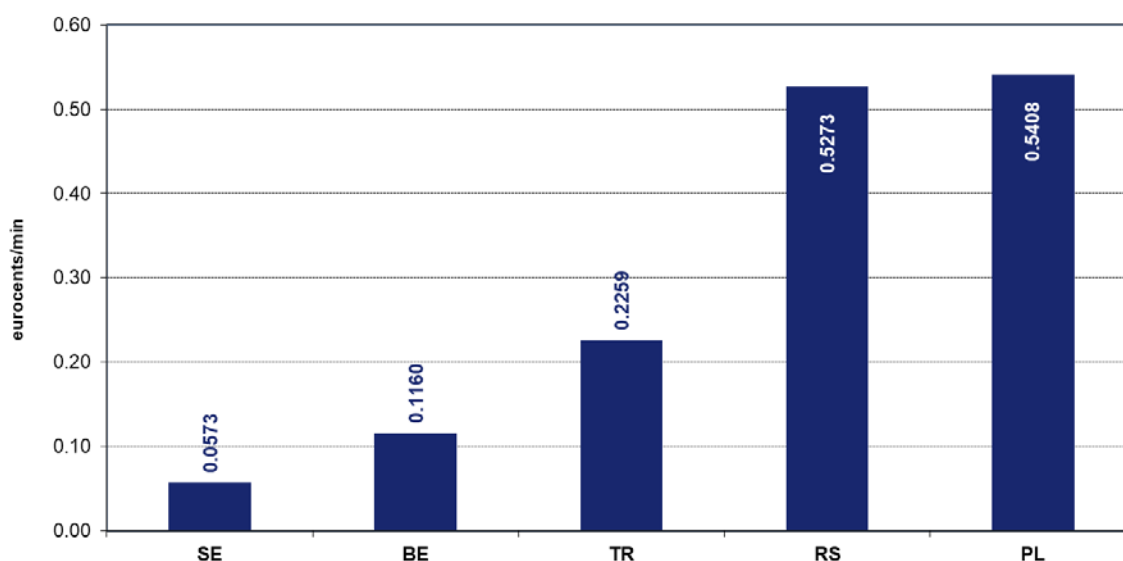
The lowest regulated rate is the rate applied by the operator at the level of interconnection that is closest to the network termination point. The second and third lowest regulated rates apply only to operators that have more than one regulated rate/interconnection layer.

Five (5) countries out of 38 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**

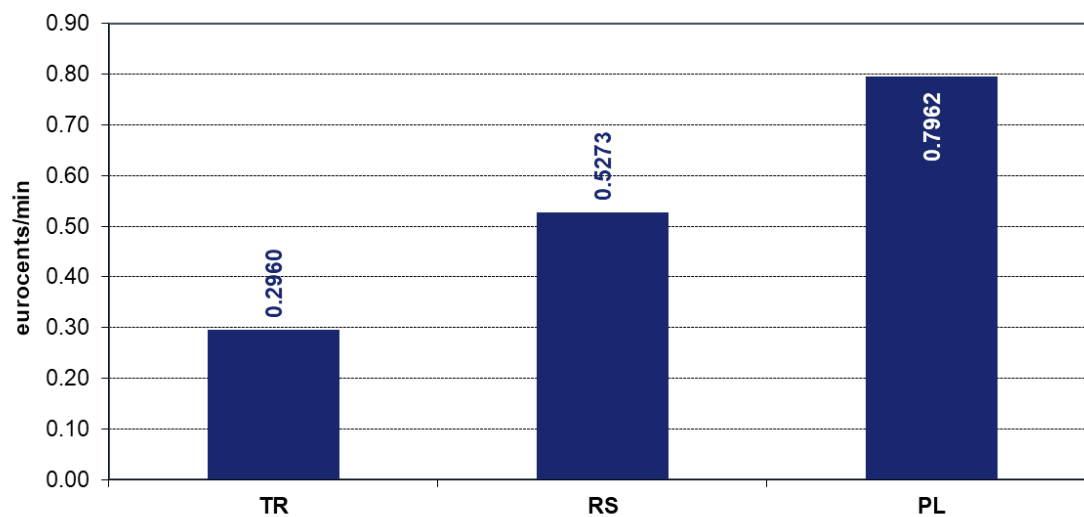
Figures 4 and 5 show the incumbents' second and third lowest regulated fixed termination rate per country. For more information on the individual lowest rates of respective incumbents, please refer to Figure 1 and respectively [Annex 1](#).

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



Source: NRAs, BEREC

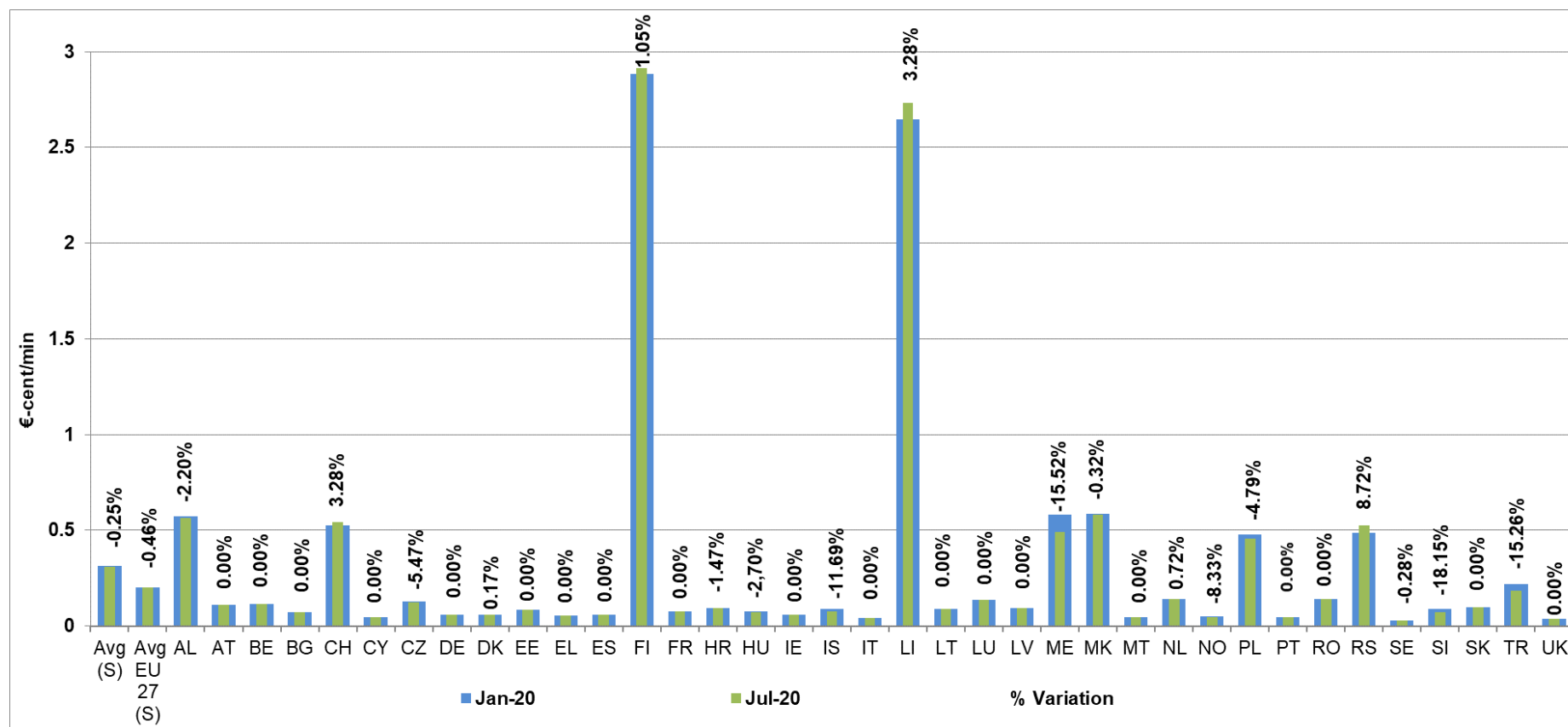
**Figure 5 Incumbents' third lowest regulated fixed termination rate per country (eurocent per minute)**



Source: NRAs, BEREC

### 2.3. Short term evolution of fixed incumbents' FTRs

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

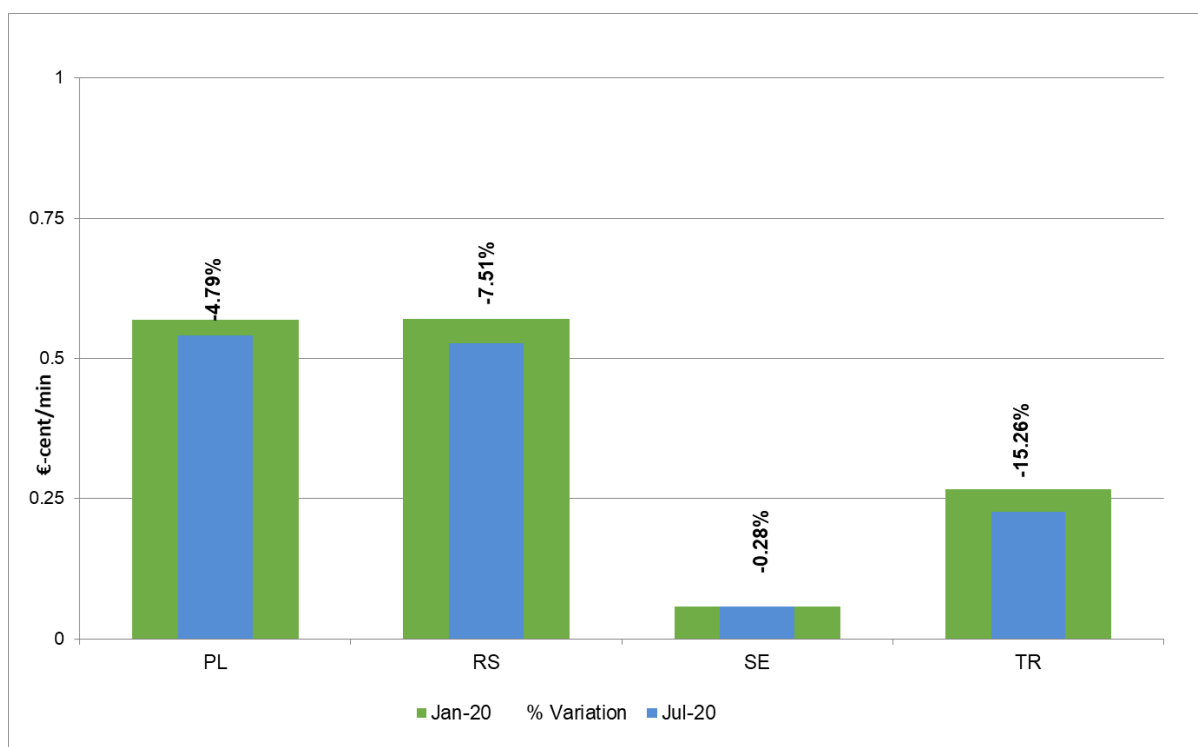


Source: NRAs, BEREC

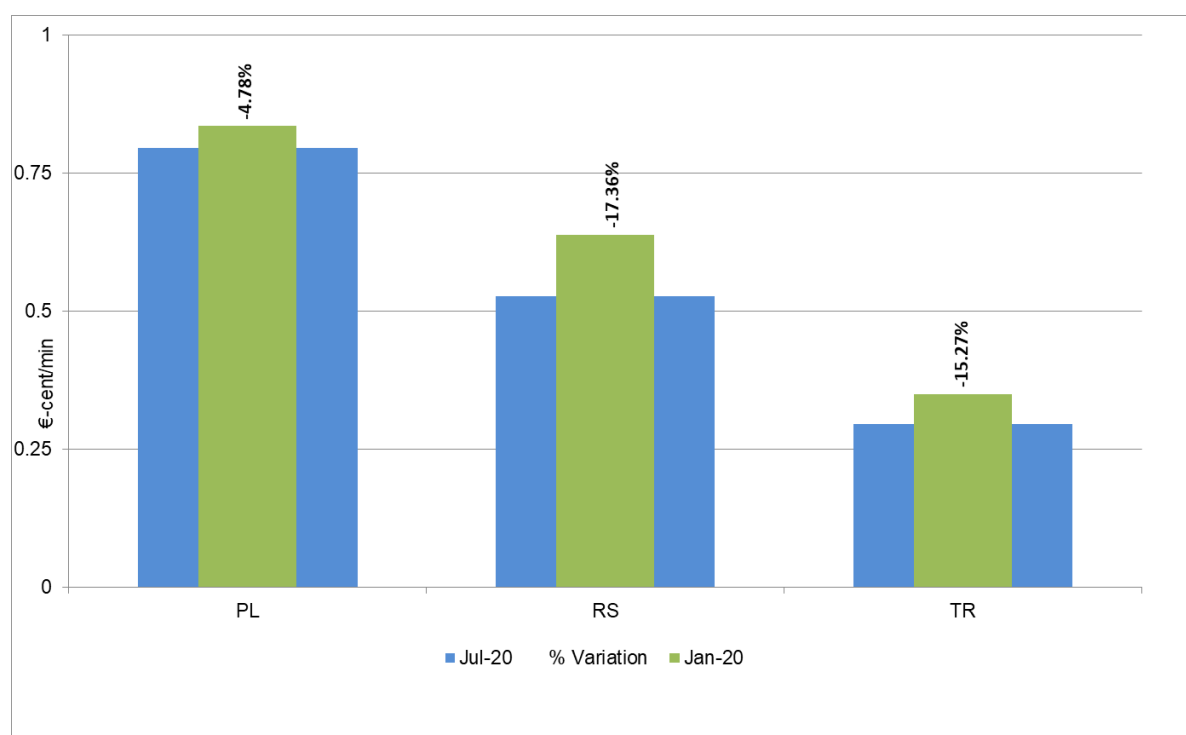
The above chart shows the variation in percentage of the lowest regulated fixed termination rate of incumbents between January 2020 and July 2020. For easier comparison, rates are stated in eurocent.

Please note that figures should be shown in euros. Therefore, in some cases, like in AL and TR, there is a change in value in euros, despite the fact that the price remains the same in national currency, since fluctuation of currency exchange rate impacts the value.

**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 2019, unless otherwise stated in the notes of [Annex 2](#).

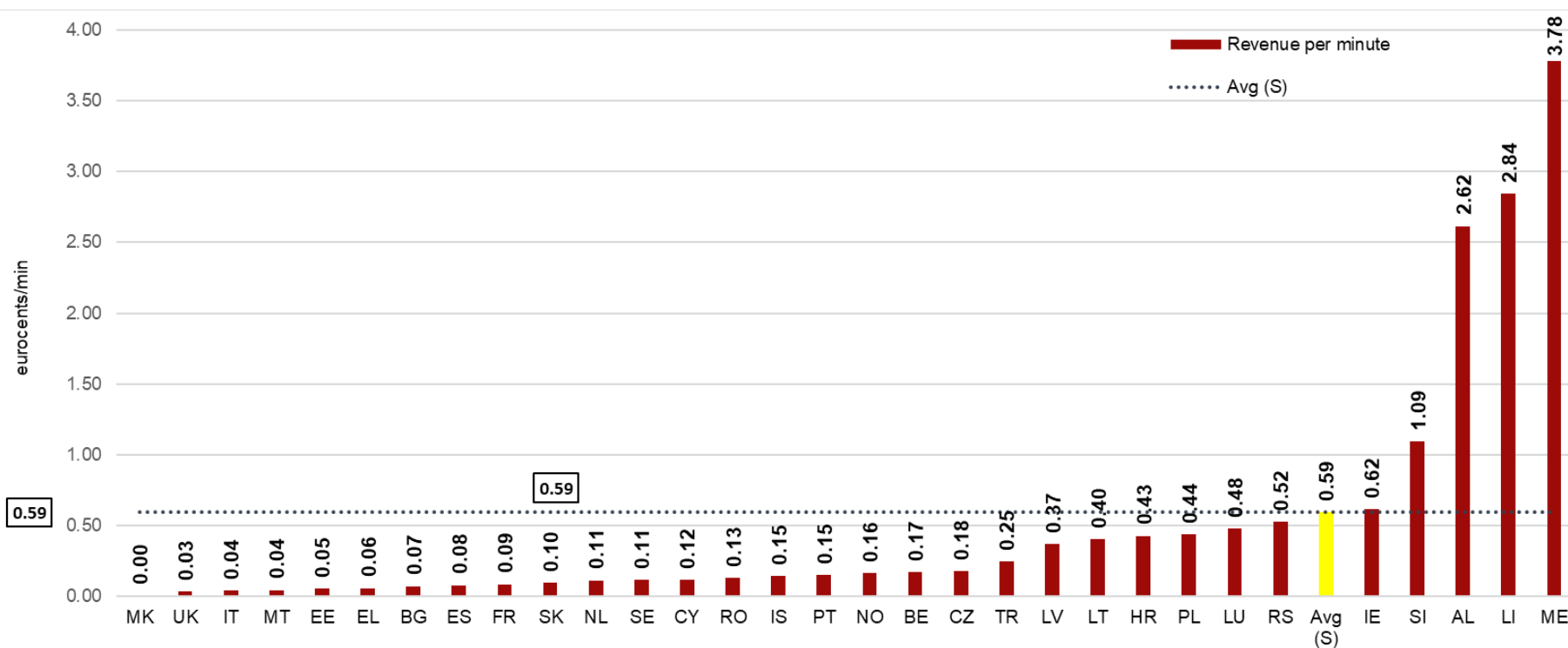
Note that the average revenues per minute provided are aggregated for each country to:

- 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 (eurocent per minute)



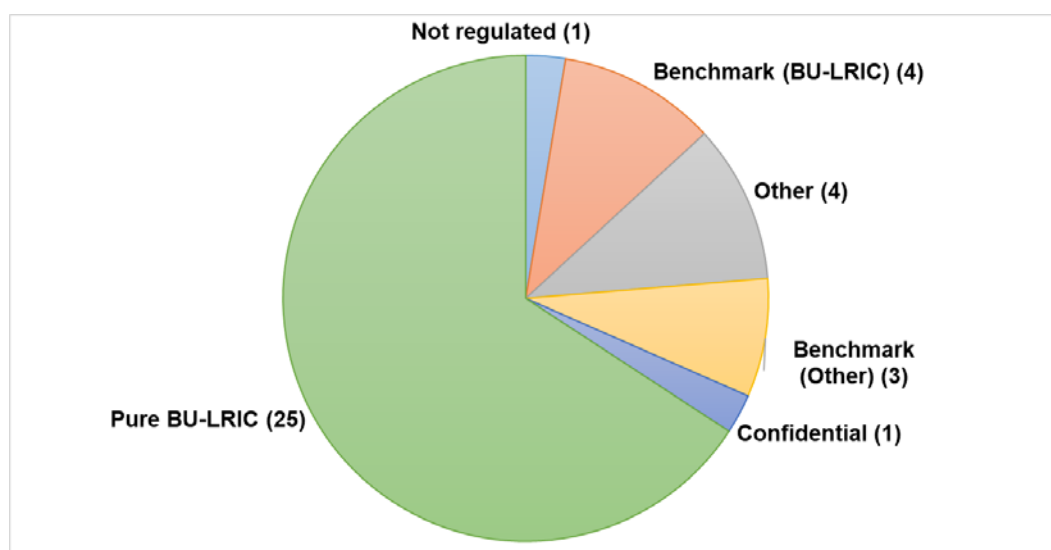
Source: NRAs, BEREC

## 2.5. FTR regulatory model implemented and symmetry overview

Most NRAs (25) use Pure BU LRIC models to set FTRs, while 4 NRAs use Benchmarking (BU-LRIC) approaches and Benchmark (other) is used by 3 NRAs.

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

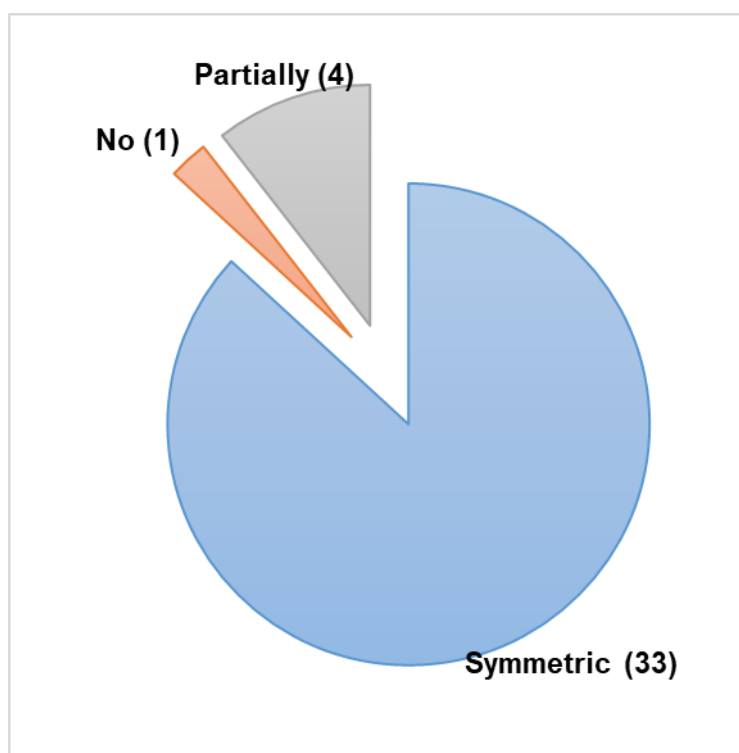
**Figure 10 Cost accounting models for FTR used by NRAs**



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 25 NRAs using Pure BU LRIC models, 3 NRAs are using Benchmarking while 4 of these NRAs are using Benchmarking based on Pure BU LRIC.

Furthermore, in most of the respondent countries (33), FTRs are symmetric across all operators. 4 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 2020 and its recent evolution. The purpose of this comparison is to provide an indication of the level of MTRs across the NRAs, their variations and the cost models adopted for setting MTRs. Moreover, this benchmarking exercise includes a section devoted to the future evolution of MTRs<sup>4</sup>.

The present overview of MTRs is based upon the results of a request for information sent to all NRAs in July 2020. It includes data from thirty-eight (38) NRAs<sup>5</sup>.

#### 3.1. Assumptions made for the benchmarking

For the present benchmarking exercise, the following assumptions have been made in order to make tariffs comparable<sup>6</sup>:

- Operators with a market share below 1.5% have been excluded from the national MTR average calculation.
- Only nominal tariffs are represented in the report, defining them as “the price (in 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 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 38 countries 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, 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 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.<sup>7</sup>

Regarding the short-term MTR evolution (from January 2020 to July 2020), 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);

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<sup>4</sup> See [Annex 8 – Table 8](#)

<sup>5</sup> The UK data is not updated in July 2020

<sup>6</sup> Generally speaking, these assumptions may create margins of error in the present comparison, making it difficult to draw valid conclusions for policy purposes.

<sup>7</sup> 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-EUR countries<sup>8</sup>;
- 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 2020)

Table 1- Average MTR per country

| Country/Participant | Average MTR per country/participant (eurocents/min) |
|---------------------|---|
| AL                  | 0.8915  |
| AT                  | 0.8049  |
| BE                  | 0.9900  |
| BG                  | 0.7158  |
| CH                  | 2.8877  |
| CY                  | 0.1700  |
| CZ                  | 0.9165  |
| DE                  | 0.9000  |
| DK                  | 0.5162  |
| EE                  | 0.7000  |
| EL                  | 0.6220  |
| ES                  | 0.6400  |
| FI                  | 0.8900  |
| FR                  | 0.7400  |
| HR                  | 0.5938  |
| HU                  | 0.4864  |
| IE                  | 0.5500  |
| IS                  | 0.6560  |
| IT                  | 0.7600  |
| LI                  | 2.7322  |
| LT                  | 0.9400  |
| LU                  | 0.8900  |
| LV                  | 0.8868  |
| ME                  | 0.6700  |
| MK                  | 1.0212  |
| MT                  | 0.4045  |
| NL                  | 0.5810  |
| NO                  | 0.2907  |
| PL                  | 0.9528  |
| PT                  | 0.3600  |

<sup>8</sup> 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.

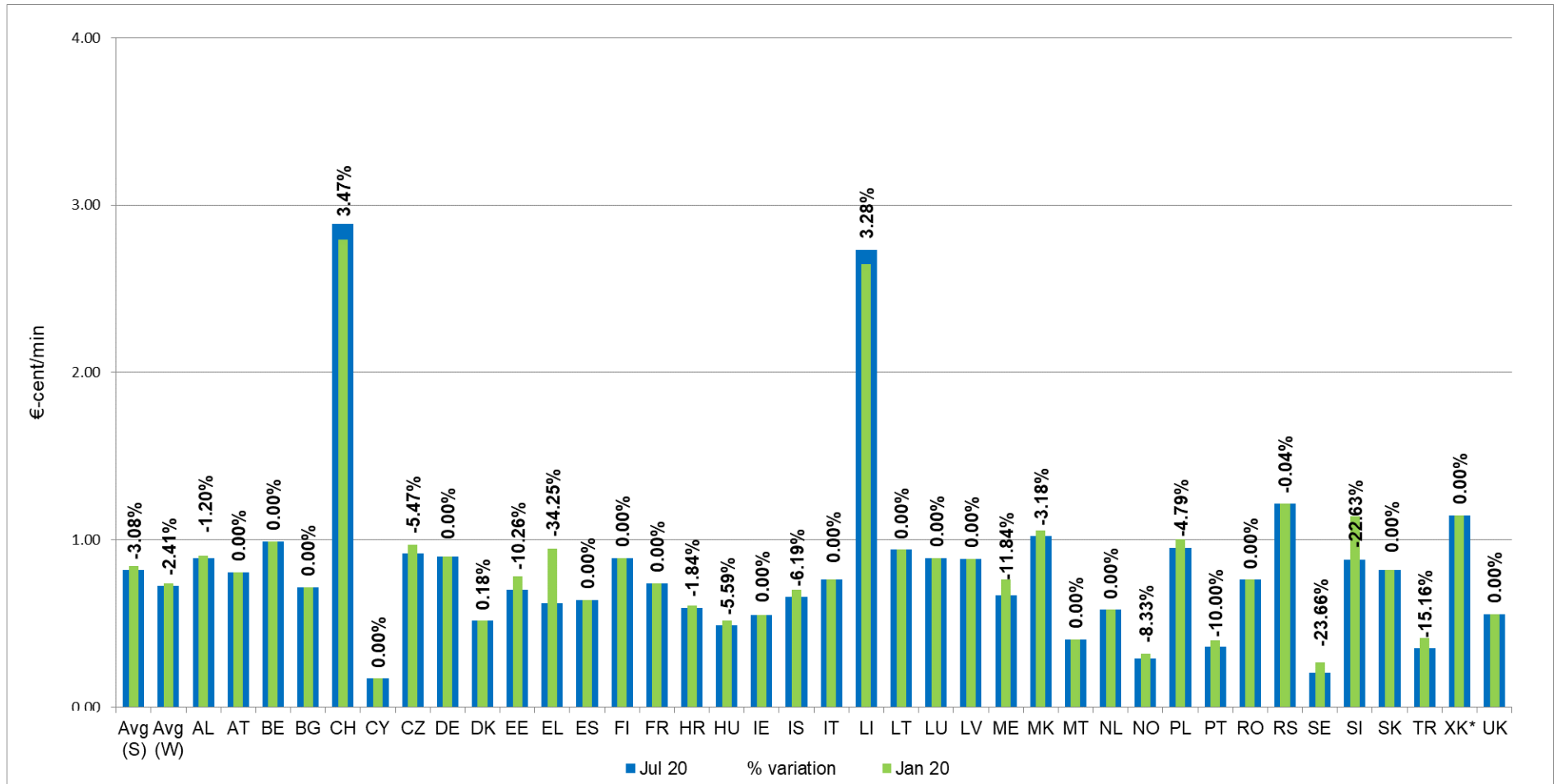
| Country/Participant | Average MTR per country/participant (eurocents/min) |
|---------------------|---|
| RO                  | 0.7600  |
| RS                  | 1.2162  |
| SE                  | 0.2028  |
| SI                  | 0.8820  |
| SK                  | 0.8180  |
| TR                  | 0.3506  |
| XK*                 | 1.1460  |
| UK                  | 0.5565  |
| <b>Avg (S)</b>      | <b>0.8182</b>                                       |
| <b>Avg (W)</b>      | <b>0.7222</b>                                       |
| <b>EU Avg (S)</b>   | <b>0.6916</b>                                       |
| <b>EU Avg (W)</b>   | <b>0.7574</b>                                       |

\*Data for UK are not updated

Figure 12 shows the short term variations of MTRs in eurocent. This figure illustrates the effect of the exchange rate on the short term evolution.

## Variation of MTRs per country (from January 2020 to July 2020)

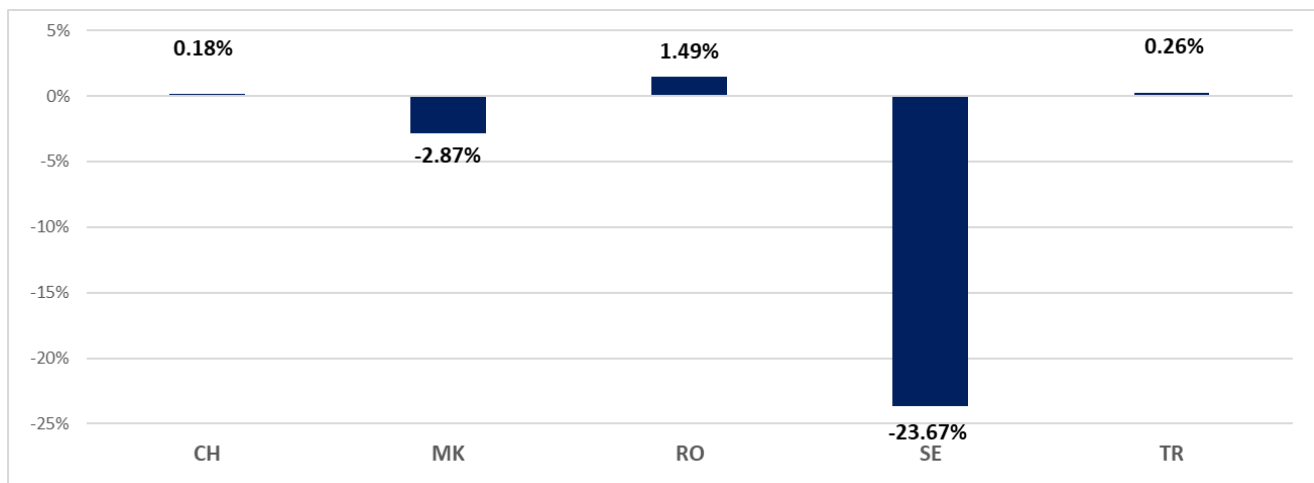
Figure 12 Variation in eurocent and percentage



Source: NRAs, BEREC

## Variation of average MTRs in national currency other than euro per country (from January 2020 to July 2020)

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.

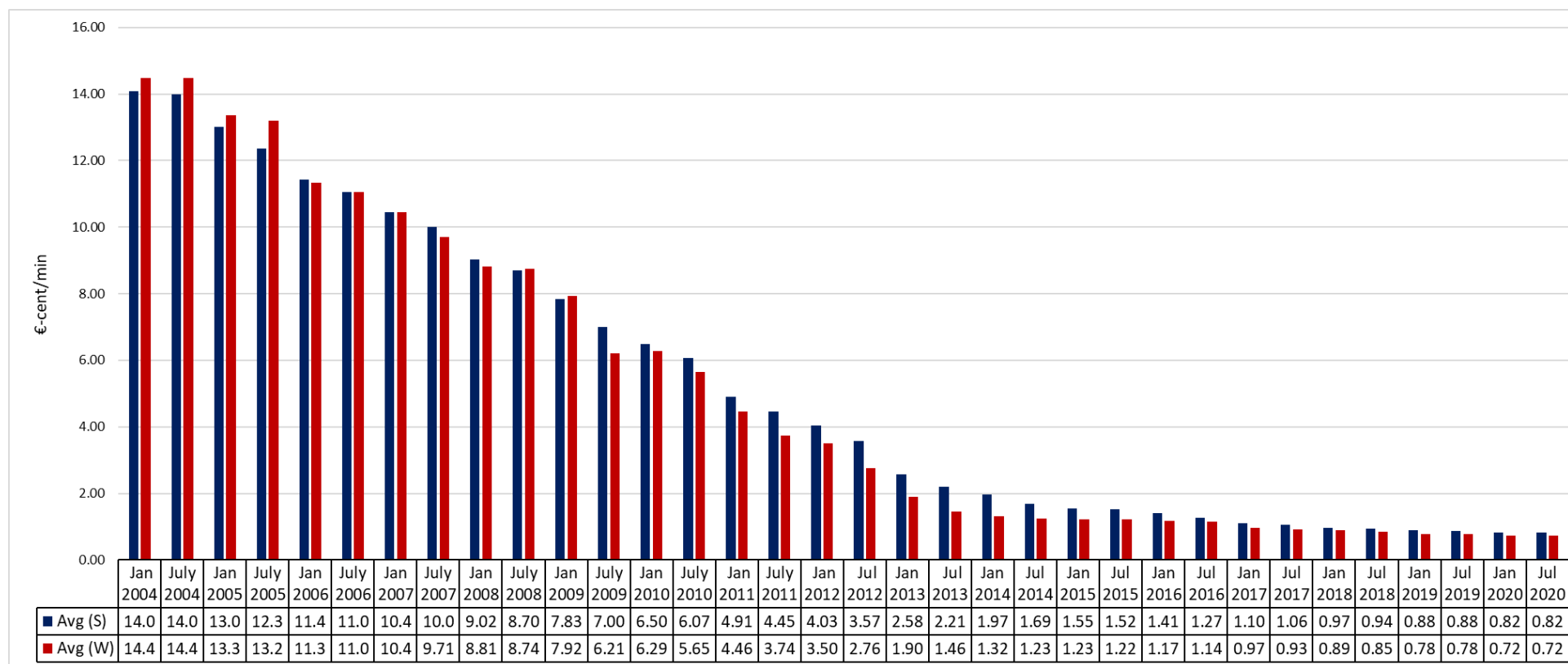
### 3.3. Average MTR per operator

There are a number of countries where the 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



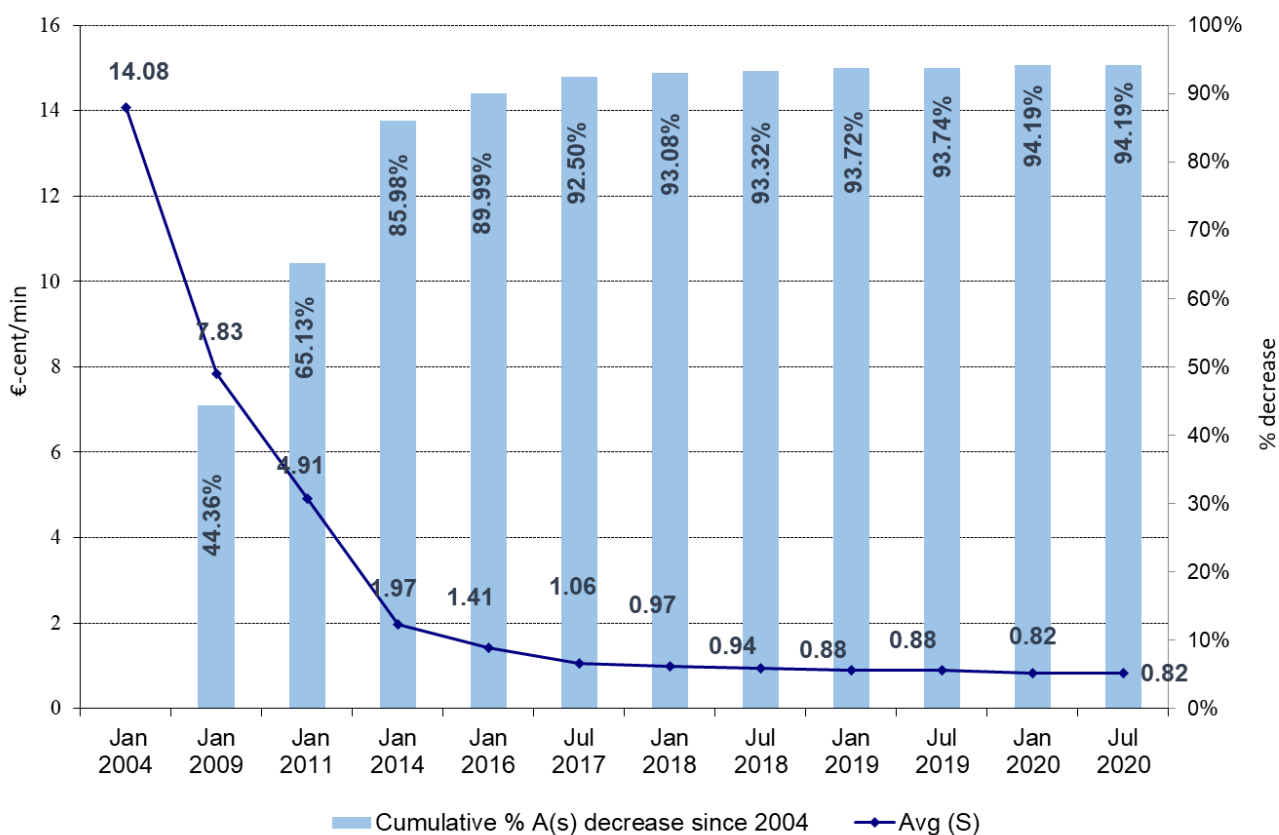
Source: NRAs, BEREC

**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.

Figure 15 and Figure 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 94% since January 2004, from 14.08 eurocent to 0.82 eurocent in July 2020.

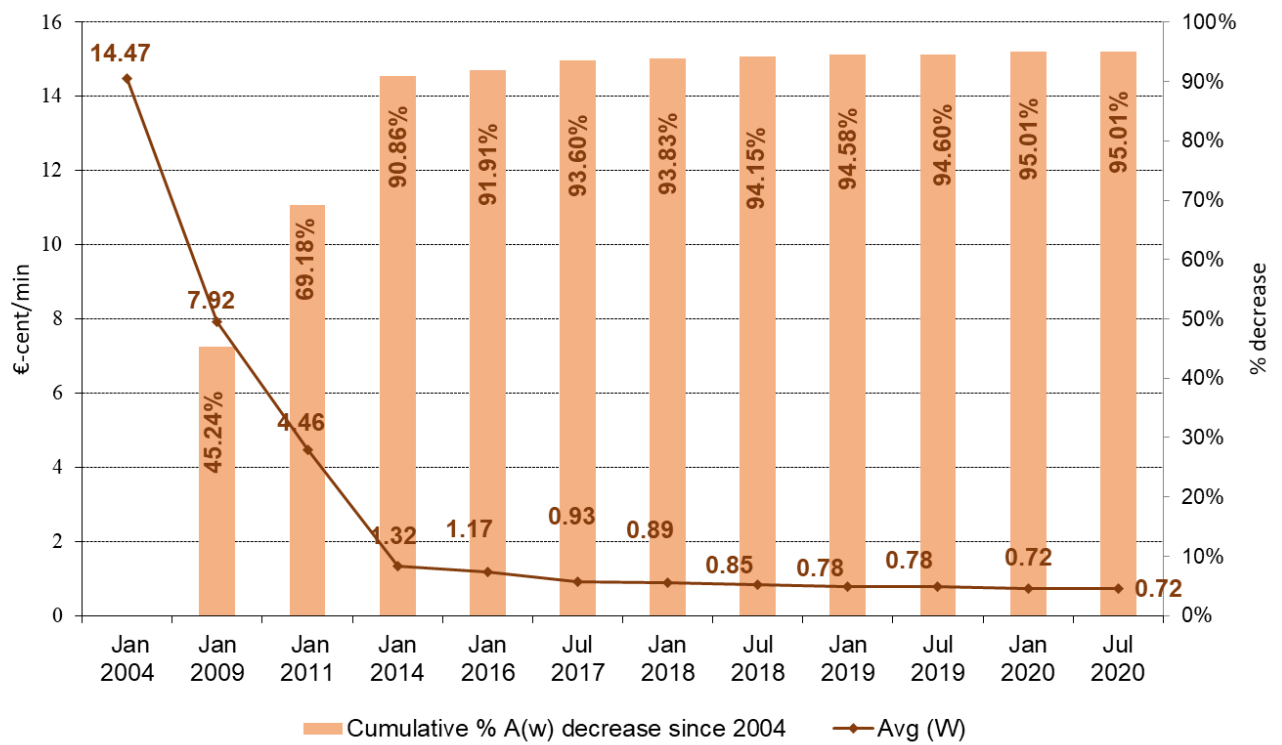
The weighted average of European MTRs has declined even more, from 14.47 eurocent to 0.72 eurocent in the same period.

**Figure 15 European MTRs simple average and cumulative decline**



Source: NRAs, BEREC

Figure 16 European MTRs weighted average and cumulative decline



Source: NRAs, BEREC

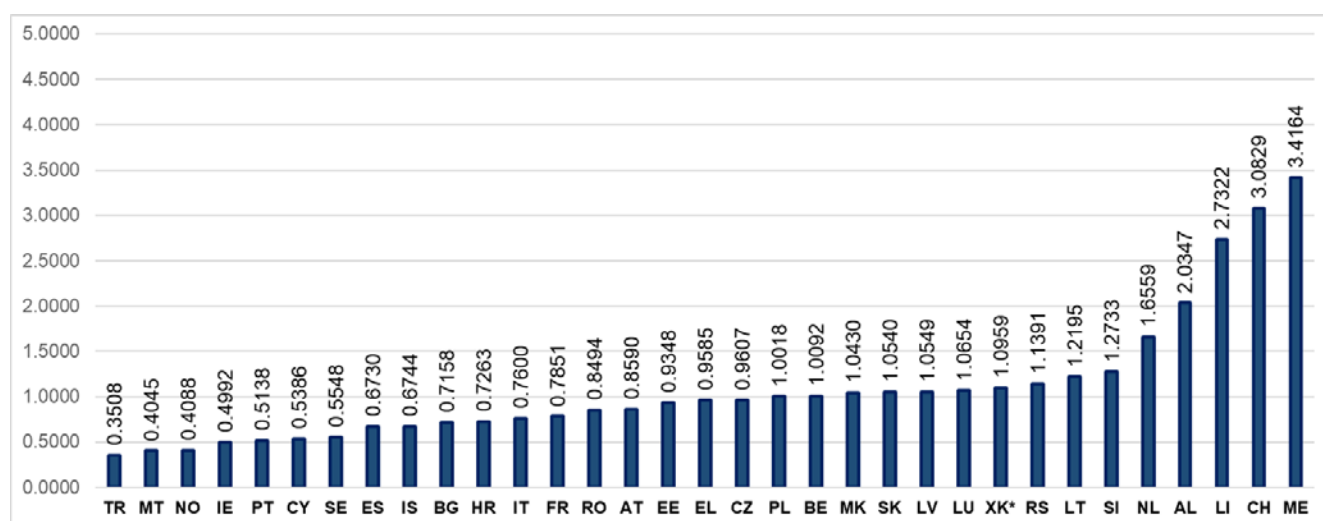


### 3.5. Average mobile termination revenue per minute per country

The average wholesale termination revenue per minute (see Figure 17 below and Annex 7) is obtained as a ratio of total revenues from termination of voice services divided by the total number of minutes of termination provided by the operators. The data refer to the entire year of 2019, unless otherwise stated in the relevant notes.

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

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



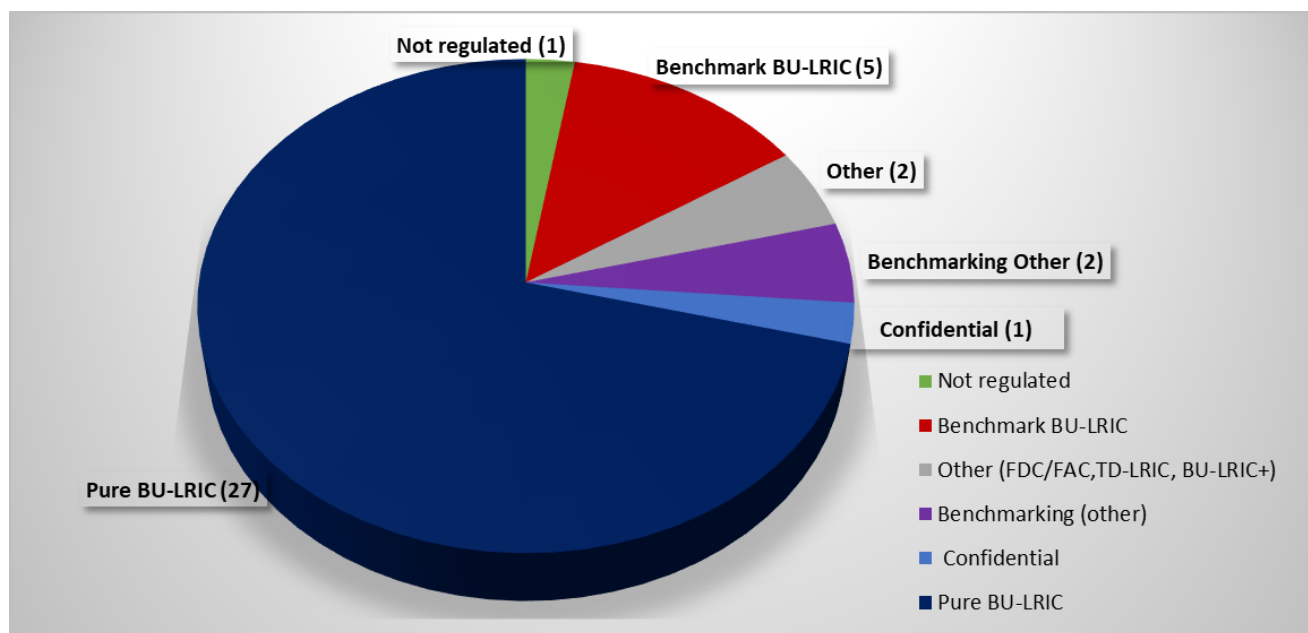
Source: NRAs, BEREC

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

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

In the majority of countries 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 2020. 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 considered<sup>9</sup>).

### 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 SMS TRs are presented 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):

- 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.
- Regarding the number of subscribers, it must be considered that different estimation methods are used among European countries (especially in the case of pre-paid consumers, but also in the case of services considered, some countries are including data-only SIM cards and/or M2M SIM cards).

On the other hand, and due to the unregulated environment existing for SMS TRs in 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 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).

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<sup>9</sup> International SMS TRs in most European countries are also based on bilateral negotiations among operators, which generally result in higher levels than the domestic rates that are reflected in this report.

- Additionally, in some countries operators<sup>10</sup> negotiate different SMS TRs vis-à-vis each one of the other operators. In this case, the highest and the lowest SMS TR is reported. See more details in Table 2 (subsection 4.2).

A simple average European level has been calculated as average value of the SMS TRs among European countries<sup>11</sup>. 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, consult [Annex 9](#): SMS TR per country.

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<sup>10</sup> CY, ES, IT, LI, and MT.

<sup>11</sup> Except CY, ES, IT, LI and MT, because of different SMS TRs among different operators within the country.

## 4.2. SMS TRs per country (as of July 2020)

Table 2- SMS TRs per country<sup>12</sup>

| Country/Participant | SMS TR per country/participant (eurocents) |
|---------------------|--|
| AL                  | 0.8031                                     |
| AT                  | 1.5217                                     |
| BE                  | 4.9600                                     |
| BG                  | Confidential                               |
| CH                  | Confidential                               |
| CY                  | 0.5470 (min); 0.7300 (max)                 |
| CZ                  | Confidential                               |
| DE                  | N/A  |
| DK                  | N/A  |
| EE                  | 2.6000                                     |
| EL                  | Confidential                               |
| ES                  | Confidential                               |
| FI                  | N/A  |
| FR                  | 1.0000                                     |
| MK                  | 3.2418                                     |
| HR                  | N/A  |
| HU                  | Confidential                               |
| IE                  | N/A  |
| IS                  | 2.4762                                     |
| IT                  | 2.5000 (min); 3.3800 (max)                 |
| LI                  | 0.0000 (min); 8.4794 (max)                 |
| LT                  | N/A  |
| LU                  | N/A  |
| LV                  | N/A  |
| ME                  | 1.0000                                     |
| MT                  | 1.6784 (min); 3.6318 (max)                 |
| NL                  | N/A  |
| NO                  | 3.1794                                     |
| PL                  | 1.1104                                     |
| PT                  | Confidential                               |
| RO                  | 2.3000                                     |
| RS                  | 1.7010                                     |
| SE                  | N/A  |
| SI                  | N/A  |
| SK                  | 2.5000                                     |
| TR                  | 0.0568 (min); 0.0621 (max)                 |
| UK                  | Confidential                               |
| XK*                 | N/A  |
| <b>Avg (S)</b>      | <b>2.1841</b>                              |

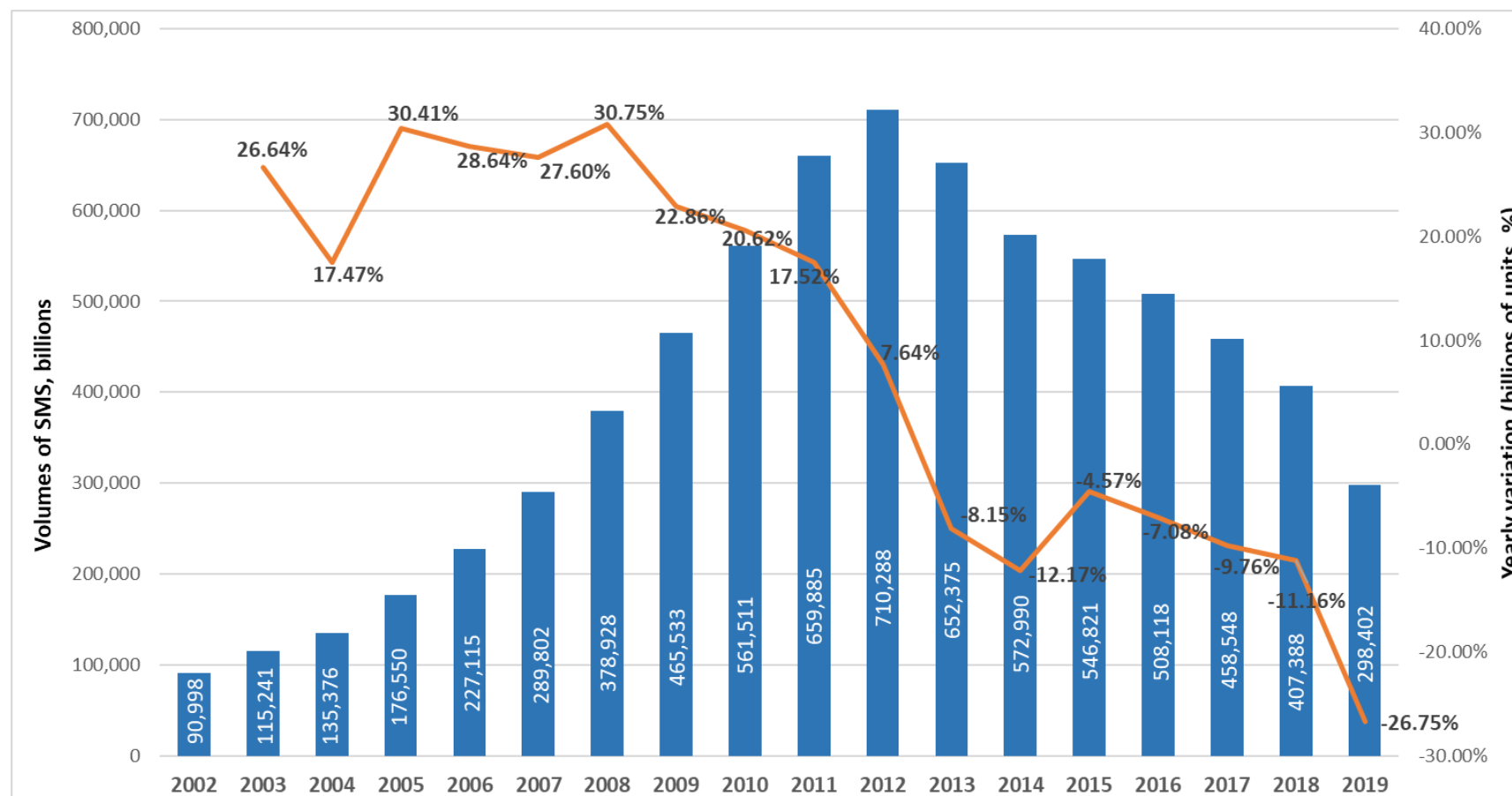
Source: NRAs, BEREC

<sup>12</sup> 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 volume of SMS sent since 2002 and is based on the time series of the countries from which information was available from 2002 to 2019. For each reporting year there are some countries which didn't provide data.

**Figure 13 Volumes of SMS sent (2002 - 2019) and yearly variation (billions of units, %)**



Source: NRAs, BEREC

Annex<sup>13</sup>

## Annex 1 Fixed termination rates as of 1 July 2020

Table 3

| Country/<br>Participant | Operator                                  | Lowest Regulated<br>Rate | WA in<br>cents |
|-------------------------|---|--------------------------|----------------|
| AL                      | Albtelecom                                | Single-rate              | 0.5622         |
|                         | Abcom                                     | Single-rate              | 0.5622         |
|                         | Albanian Satellite Communications         | Single-rate              | 0.5622         |
|                         | Rest of operators                         | Single-rate              | 0.5622         |
| 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 Telecommunication Company (BTC) | 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                                  | LRR                      | 0.5407         |
| CY                      | Cyta                                      | Single-rate              | 0.0440         |
|                         | Primetel                                  | Single-rate              | 0.0440         |
|                         | Epic                                      | Single-rate              | 0.0440         |
|                         | Cablenet                                  | Single-rate              | 0.0440         |
| CZ                      | Česká telekomunikační infrastruktura a.s. | Single-rate              | 0.1220         |
|                         | UPC Česká republika, s.r.o.               | Single-rate              | 0.1220         |
|                         | T-Mobile Czech Republic a.s.              | Single-rate              | 0.1220         |
|                         | Vodafone Czech Republic a.s.              | Single-rate              | 0.1220         |
|                         | IPEX a.s.                                 | Single-rate              | 0.1220         |
|                         | miniTEL s.r.o.                            | Single-rate              | 0.1220         |
| DE                      | Telekom Deutschland GmbH                  | Single-rate              | 0.0600         |
| DK                      | TDC                                       | Single-rate              | 0.0577         |
|                         | Telia                                     | Single-rate              | 0.0577         |
|                         | Telenor                                   | Single-rate              | 0.0577         |
| EE                      | Telia Eesti AS                            | Single-rate              | 0.0850         |

<sup>13</sup> 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/<br>Participant | Operator                          | Lowest Regulated<br>Rate | WA in<br>cents |
|-------------------------|-----------------------------------|--------------------------|----------------|
|                         | STV                               | Single-rate              | 0.0850         |
|                         | Elisa Teleteenused                | Single-rate              | 0.0850         |
|                         | Elisa                             | Single-rate              | 0.0850         |
| EL                      | OTE                               | Single-rate              | 0.0545         |
|                         | FORTHNET                          | Single-rate              | 0.0545         |
|                         | VODAFONE                          | Single-rate              | 0.0545         |
|                         | WIND                              | Single-rate              | 0.0545         |
| ES                      | Telefónica de España              | Single-rate              | 0.0593         |
|                         | Vodafone - Ono                    | Single-rate              | 0.0593         |
|                         | Orange                            | Single-rate              | 0.0593         |
|                         | Grupo MASMOVIL                    | Single-rate              | 0.0593         |
|                         | Euskaltel                         | Single-rate              | 0.0593         |
|                         | Rest of operators                 | Single-rate              | 0.0593         |
| FI                      | DNA Oyj                           | Single-rate              | 2.8000         |
|                         | Elisa Oyj                         | Single-rate              | 2.8000         |
|                         | Telia Finland Oyj                 | Single-rate              | 2.8000         |
|                         | Rest of operators                 | Single-rate              | 3.2000         |
|                         | Weighted average of all operators | Average                  | 2.9130         |
| FR                      | All operators                     | Single-rate              | 0.0770         |
| HR                      | HT                                | Single-rate              | 0.0936         |
|                         | OPTIMA                            | Single-rate              | 0.0936         |
|                         | A1                                | Single-rate              | 0.0936         |
| HU                      | Magyar Telekom                    | Single-rate              | 0.0740         |
|                         | Digi                              | Single-rate              | 0.0740         |
|                         | Vodafone                          | Single-rate              | 0.0740         |
|                         | Rest of operators                 | Single-rate              | 0.0740         |
| IE                      | Eir                               | Single-rate              | 0.0570         |
|                         | Virgin Media                      | Single-rate              | 0.0570         |
|                         | Vodafone                          | Single-rate              | 0.0570         |
|                         | Sky                               | Single-rate              | 0.0570         |
|                         | Rest of operators                 | Single-rate              | 0.0570         |
| IS*                     | Siminn                            | Single-rate              | 0.0874         |
|                         | Vodafone                          | Single-rate              | 0.0874         |
| IT                      | TIM S.p.A.                        | Single-rate              | 0.0410         |
|                         | Vodafone Italia S.p.A.            | Single-rate              | 0.0410         |
|                         | Fastweb S.p.A.                    | Single-rate              | 0.0410         |
|                         | Wind Tre S.p.A.                   | Single-rate              | 0.0410         |
|                         | Linkem S.p.A.                     | Single-rate              | 0.0410         |
|                         | Eolo S.p.A.                       | Single-rate              | 0.0410         |
|                         | Rest of operators (4)             | Single-rate              | 0.0410         |
| LT                      | Telia Lietuva, AB                 | Single-rate              | 0.0900         |



| Country/<br>Participant | Operator                   | Lowest Regulated<br>Rate | WA in<br>cents |
|-------------------------|----------------------------|--------------------------|----------------|
|                         | UAB „CSC Telecom“          | Single-rate              | 0.0900         |
|                         | Baltnetos komunikacijos    | Single-rate              | 0.0900         |
|                         | Cgates                     | Single-rate              | 0.0900         |
|                         | Other                      | Single-rate              | 0.0900         |
| LI                      | Telecom Liechtenstein AG   | Single-rate              | 2.7322         |
|                         | Backbone Solutions AG      | Single-rate              | 2.7322         |
|                         | Nexphone AG                | Single-rate              | 2.7322         |
| LU                      | Post                       | Single-rate              | 0.1380         |
|                         | Proximus S.A.              | Single-rate              | 0.1380         |
|                         | Luxembourg Online S.A.     | Single-rate              | 0.1380         |
|                         | Rest of operators          | Single-rate              | 0.1380         |
| LV                      | Tet (ex. Lattelecom)       | Single-rate              | 0.0960         |
|                         | Latvijas Mobilais Telefons | Single-rate              | 0.0960         |
|                         | CSC Telecom                | Single-rate              | 0.0960         |
|                         | D-COM                      | Single-rate              | 0.0960         |
|                         | Rest of operators          | Single-rate              | 0.0956         |
| ME                      | Crnogorski Telekom         | Single-rate              | 0.4900         |
|                         | Mtel                       | Single-rate              | 0.4900         |
|                         | Telenor                    | Single-rate              | 0.4900         |
|                         | Telemach                   | Single-rate              | 0.4900         |
| 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         |
|                         | Vanilla Telecoms Ltd       | Single-rate              | 0.0443         |
| MK*                     | Makedonski Telekom         | Single-rate              | 0.5835         |
|                         | A1                         | Single-rate              | 0.5835         |
|                         | Telekabel TRD Robi         | Single-rate              | 0.5835         |
|                         | Rest of operators (4)      | Single-rate              | 0.5835         |
| NL                      | KPN                        | Single-rate              | 0.1400         |
|                         | Ziggo                      | Single-rate              | 0.1400         |
|                         | T-Mobile/Tele2             | Single-rate              | 0.1400         |
| NO                      | Telenor                    | Single-rate              | 0.0454         |
|                         | Telia                      | Single-rate              | 0.0454         |
|                         | Next Gentel                | Single-rate              | 0.0454         |
|                         | Rest of operators          | Single-rate              | 0.0454         |
| PL                      | Orange Polska S.A.         | Single-rate              | 0.4553         |
|                         | Orange Polska S.A.         | 2nd LRR                  | 0.5408         |
|                         | Orange Polska S.A.         | 3rd LRR                  | 0.7962         |
|                         | UPC Polska Sp. z o.o.      | 2nd LRR                  | 0.4553         |
|                         | Netia S.A.                 | Single-rate              | 0.4553         |
|                         | Multimedia Polska S.A.     | 2nd LRR                  | 0.4830         |

| Country/<br>Participant | Operator                       | Lowest Regulated<br>Rate | WA in<br>cents |
|-------------------------|--------------------------------|--------------------------|----------------|
| PT                      | MEO                            | Single-rate              | 0.0470         |
|                         | NOS Group                      | Single-rate              | 0.0470         |
|                         | Vodafone                       | Single-rate              | 0.0470         |
|                         | NOWO/ONI                       | Single-rate              | 0.0470         |
|                         | Rest of operators (4)          | Single-rate              | 0.0470         |
| RO                      | Telekom RC S.A.                | Single-rate              | 0.1400         |
|                         | S.C. RCS&RDS S.A.              | Single-rate              | 0.1400         |
|                         | S.C. VODAFONE ROMANIA S.A      | Single-rate              | 0.1400         |
|                         | ORANGE ROMANIA S.A.            | Single-rate              | 0.1400         |
| 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                      | 0.0272         |
|                         | Telia Company AB               | 2nd LRR                  | 0.0573         |
|                         | Com Hem AB                     | LRR                      | 0.0272         |
|                         | Tele2 Sverige AB               | LRR                      | 0.0272         |
|                         | Telenor Sverige AB             | LRR                      | 0.0272         |
|                         | Telavox AB                     | LRR                      | 0.0272         |
|                         | Rest of operators              | LRR                      | 0.0272         |
| 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                      | 0.1836         |
|                         | Türk Telekom                   | 2nd LRR                  | 0.2259         |
|                         | Türk Telekom                   | 3rd LRR                  | 0.2960         |
|                         | TTNet                          | Single-rate              | 0.4228         |
|                         | Türksat                        | Single-rate              | 0.4228         |
|                         | Superonline                    | Single-rate              | 0.4228         |
|                         | Rest of operators              | Single-rate              | 0.4228         |
| XK*                     | Telekom of Kosovo SH.A.        | Single-rate              | 0.6600         |
|                         | IPKO TELECOMMUNICATIONS L.L.C. | Single-rate              | 0.6600         |
|                         | KUJTESA.NET SH.P.K.            | Single-rate              | 0.6600         |
|                         | mts d.o.o.                     | Single-rate              | 0.6600         |

| Country/<br>Participant | Operator     | Lowest Regulated<br>Rate | WA in<br>cents |
|-------------------------|--------------|--------------------------|----------------|
| UK                      | BT           | Single-rate              | 0.0357         |
|                         | TalkTalk     | Single-rate              | 0.0357         |
|                         | Sky          | Single-rate              | 0.0357         |
|                         | Virgin Media | Single-rate              | 0.0357         |
|                         | Vodafone     | Single-rate              | 0.0357         |

### Notes to table 3:

#### Incumbents are indicated first in the table

**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 – to 31.12.2018 – 0.0015 BGN/minute;

from 01.01.2019 – 0.0014 BGN/minute.

According 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 0.0014), determined by BU-LRIC model adopted with CRC's Decision 550/20.10.2016.

**CH:** No glide path is applied.

**CY:** No peak and off-peak separation of rates.

**DE:** In May 2019 BNetzA notified the following glide path for fixed termination rates of incumbent Telekom Deutschland and 67 alternative network operators:

0.08 €cents/min in 2019;

0.06 €cents/min in 2020;

0.05 €cents/min in 2021;

0.03 €cents/min in 2022.

The tariffs for 2021 and 2022 only apply as long as the tariffs are not yet in force according to the European Electronic Communications Code (EECC) Artikel 75.

**IE:** Due to ComReg Decision D11/19 the max. FTR changed to 0.063 EUR cents/min on 1.8.2019.

**LT:** Setting FTR based on average of pure "BU-LRIC" by other countries. 0.09 EUR ct is adopted since 01/07/2019.

**SI:** On 20.12.2019 new decision was issued for market 1 with new value of FTR which will be in use from 1.2.2020 on and its value is 0.000717 EUR/min.

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

## Annex 2 Average fixed termination revenue per country

### Notes to figure 9

**AL:** From 01.12.2018 until 01.12.2019 FTR tariff was 1 ALL. The revenues and minutes refer to total for all levels of fixed termination.

**AT:** Not available.

**BE:** Termination to geographical numbers.

**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).

**CY:** Data for Cyta and Epic.

**DK:** The DBA do not collect revenues from termination.

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

**FR:** 1 - FTRs for calls coming from abroad are not taken into account in the figures provided. There are only national FTRs.

2 - Final figures for 2019 will not be available before December 2020: the figures provided are an estimate based on quarterly scorecards and previous annual scorecards.

3 - Revenues take into account other elements such as link rental, provision of services related to call termination.

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

**HU:** Not available.

**IE:** Revenue from Termination of calls to End Users and Termination of calls to Service Providers for all of 2019.

**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:** When calculating the average FTR based on revenue and minutes we got a higher TR. One of the reasons why the result is above the regulated TR is that FTR revenue and 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.

**RS:** Data provided are for 2019 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.

# Annex 3 FTR regulatory cost accounting model implemented

Table 4

| Jul-20 | COST ACCOUNTING MODEL |               |   |   |   |   |   |   |
|--------|-----------------------|---------------|---|---|---|---|---|---|
|        | Model                 | Rate status   | When a tariff adopted by a final decision and meeting the standards of the TR Recommendation has been or will be firstly applied? | Period 1 - From 01/01/2020 until 30/06/2020 | Period 2 - From 01/07/2020 until 31/12/2020 | Period 3 - From 01/01/2021 until 30/06/2021 | Period 4 - From 01/07/2021 until 31/12/2021 | Period 5 - From 01/01/2022 until 31/07/2022 |
| AL     | Benchmark (Other)     | adopted       | 01.12.2019  | 0.5622                                      | 0.5622                                      | 0.5622                                      |   |   |
| AT     | Pure BU-LRIC          | adopted       |   | 0.137/0.085                                 | 0.137/0.085                                 |   |   |   |
| BE     | Pure BU-LRIC          | adopted       | 1.1.2013  | 0.1160                                      | 0.1160                                      | 0.1160                                      |   |   |
| BG     | Pure BU-LRIC          | adopted       | 1.11.2016   | 0.0716                                      |   |   |   |   |
| CH     | BU-LRIC+              | not regulated |   |   |   |   |   |   |
| CY     | Pure BU-LRIC          | adopted       | 01.01.2019  | 0.0440                                      | 0.0440                                      |   |   |   |
| CZ     | Pure BU-LRIC          | adopted       | 01.08.2014  | 0.1290                                      |   |   |   |   |
| DE     | Pure BU-LRIC          | adopted       | 01.01.2020  | 0.0600                                      | 0.0500                                      | 0.0500                                      | 0.0300                                      |   |
| DK     | Pure BU-LRIC          | adopted       | 01.01.2013  | 0.4100                                      | 0.4300                                      | 0.4300                                      | Unknown                                     | Unknown                                     |
| EE     | Benchmark (BU-LRIC)   | adopted       | 11.10.2018  | 0.0850                                      |   |   |   |   |
| EL     | Pure BU-LRIC          | adopted       | 28.05.2014  | 0.0545                                      | 0.0545                                      |   |   |   |
| ES     | Pure BU-LRIC          | adopted       | 30.01.2018  | 0.0593                                      | 0.0545                                      | 0.0545                                      | 0.0545                                      |   |
| FI     | other (FDC/FAC)       | adopted       |   |   |   |   |   |   |
| FR     | Pure BU-LRIC          | adopted       | 1.1.2013  | 0.0770                                      | 0.0770                                      |   |   |   |
| MK     | Pure BU-LRIC          | adopted       | Glide path not planned.   | 0.5854                                      | 0.5854                                      | 0.5854                                      |   |   |
| HR     | Pure BU-LRIC          | adopted       | 01.01.2015  | 0.0950                                      | 0.0936                                      |   |   |   |
| HU     | Pure BU-LRIC          | adopted       | 07.01.2018  | 0.0783                                      | 0.0783                                      | 0.0783                                      | 0.0783                                      | 0.0783                                      |
| IE     | Pure BU-LRIC          | adopted       | 1.7.2014  | 0.0570                                      | 0.0570                                      | 0.0510                                      | 0.0510                                      |   |
| IS     | Benchmark (BU-LRIC)   | notified      |   |   |   |   |   |   |
| IT     | Pure BU-LRIC          | adopted       | 1.7.2013  | 0.9000                                      | 0.7600                                      | 0.7600                                      |   |   |
| LI     | Benchmark (FDC/FAC)   | adopted       | 1.6.2017  | 2.6500                                      |   |   |   |   |

| Jul-20 | COST ACCOUNTING MODEL |             |   |   |   |   |   |   |
|--------|-----------------------|-------------|---|---|---|---|---|---|
|        | Model                 | Rate status | When a tariff adopted by a final decision and meeting the standards of the TR Recommendation has been or will be firstly applied? | Period 1 - From 01/01/2020 until 30/06/2020 | Period 2 - From 01/07/2020 until 31/12/2020 | Period 3 - From 01/01/2021 until 30/06/2021 | Period 4 - From 01/07/2021 until 31/12/2021 | Period 5 - From 01/01/2022 until 31/07/2022 |
| LT     | Benchmark (BU-LRIC)   | adopted     | 01.07.2019  | 0.0900                                      |   |   |   |   |
| LU     | Pure BU-LRIC          | adopted     | 01.01.2019  | 0.1400                                      |   |   |   |   |
| LV     | Benchmark (BU-LRIC)   | adopted     | 26.4.2017   | 0.0960                                      | 0.0960                                      | 0.0960                                      |   |   |
| ME     | TD - LRIC             | adopted     |   | 0.5800                                      |   |   |   |   |
| MT     | Pure BU-LRIC          | adopted     | 01.07.2013  | 0.0443                                      | 0.0443                                      |   |   |   |
| NL     | Pure BU-LRIC          | adopted     | 01.07.2017  | 0.1390                                      | 0.1390                                      | 0.1390                                      | 0.1390                                      | 0.1390                                      |
| NO     | Pure BU-LRIC          | adopted     | 04.01.2016  | 0.0495                                      | 0.0495                                      | 0.0396                                      | 0.0396                                      |   |
| PL     | TD-FDC/FAC            |             |   |   |   |   |   |   |
| PT     | Pure BU-LRIC          | adopted     | 01.09.2018  | 0.0470                                      | 0.0460 (from 01/10/2020)                    | 0.046                                       |   |   |
| RO     | Benchmark (BU-LRIC)   | adopted     | 1.4.2014  | 0.1400                                      |   |   |   |   |
| RS     | Benchmark (Other)     |             |   | 0.4850                                      | 0.5275                                      |   |   |   |
| SE     | Pure BU-LRIC          | adopted     | 1.1.2020  | 0.2900                                      |   |   |   |   |
| SI     | Pure BU-LRIC          | adopted     | from 1.11.2014 for 0.0876 Euro/cents / from 1.2.2020 for 0.0717 Euro/cents  | 0.0717                                      | 0.0717                                      |   |   |   |
| SK     | Pure BU-LRIC          | adopted     | 01.09.2018  | 0.0976                                      |   |   |   |   |
| TR     | Confidential          |             |   |   |   |   |   |   |
| XK     | Benchmark (Other)     |             |   |   |   |   |   |   |
| UK     | Pure BU-LRIC          | adopted     |   |   |   |   |   |   |

**Notes to table 4:**

**BG:** According 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 (from 01.01.2020 - BGN 0.0014), determined by BU-LRIC model adopted with CRC's Decision 550/20.10.2016.

**EL:** A Pure BU LRIC model applies since 28.05.2014 as a result of EETT's decision 714/09/10-4-2014 (Official Gazette 1049/28-04-2014).

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

**LI:** The FTR regulation is not finalized. The FTR of 2.9 CHFcents/min as of 1st of June 2017 is taking into account the implementation of the transitional regime of the new roaming regulation starting 30 April 2016 (Temporary value to be replaced as soon as FTR regulation is finalized).

**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:** 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).

**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.

**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.

**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/<br>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.<br><br>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/<br>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       |   |
| NMK                     | 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        |   |
| UK                      | Yes       |   |

## Annex 5 Number of active fixed telephony lines and Market shares

Table 6

| Country/<br>Participant | Operator                                  | Number of<br>lines | Total number<br>of lines | Market<br>share |
|-------------------------|---|--------------------|--------------------------|-----------------|
| AL                      | Albtelecom                                | 176,653            | 242,859                  | 72.74%          |
|                         | Abcom                                     | 11,409             |                          | 4.70%           |
|                         | Abissnet sh.a                             | 4,095              |                          | 1.69%           |
|                         | Albanian Satellite Communications         | 35,558             |                          | 14.64%          |
|                         | Digicom shpk                              | 2,371              |                          | 0.98%           |
|                         | Nisatel                                   | 4,098              |                          | 1.69%           |
|                         | Rest of operators (4)                     | 8,675              |                          | 3.57%           |
| AT                      | A1 Telekom Austria                        | 1,787,214          | 3,088,432                | 57.87%          |
|                         | Operator 2                                | 573,645            |                          | 18.57%          |
|                         | Operator 3                                | 411,444            |                          | 13.32%          |
|                         | Operator 4                                | 68,871             |                          | 2.23%           |
|                         | Operator 5                                | 62,766             |                          | 2.03%           |
|                         | Operator 6                                | 32,563             |                          | 1.05%           |
|                         | Rest of operators                         | 151,929            |                          | 4.92%           |
| BE                      | Proximus                                  | 2,297,141          | 3,930,410                | 58.45%          |
|                         | Rest of operators                         | 1,633,269          |                          | 41.55%          |
| BG                      | Bulgarian Telecommunication Company       | Confidential       | 1,035,320                | Confidential    |
|                         | A1 Bulgaria                               | Confidential       |                          | Confidential    |
|                         | Telenor Bulgaria                          | Confidential       |                          | Confidential    |
|                         | Rest of operators                         | 51,953             |                          | 5.02%           |
| CH                      | Swisscom                                  | N/A                |                          | N/A             |
| CY                      | Cyta                                      | 203,213            | 320,649                  | 63.38%          |
|                         | Primetel                                  | 46,545             |                          | 14.52%          |
|                         | Epic                                      | 24,666             |                          | 7.69%           |
|                         | Cablenet                                  | 46,225             |                          | 14.42%          |
| CZ                      | Česká telekomunikační infrastruktura a.s. | Confidential       | Confidential             | 36.16%          |
|                         | UPC Česká republika, s.r.o.               | Confidential       |                          | 13.76%          |
|                         | T-Mobile Czech Republic a.s.              | Confidential       |                          | 7.21%           |
|                         | Vodafone Czech Republic a.s.              | Confidential       |                          | 5.34%           |
|                         | IPEX a.s.                                 | Confidential       |                          | 3.78%           |
|                         | miniTEL s.r.o.                            | Confidential       |                          | 2.98%           |
|                         | Rest of operators                         | Confidential       |                          | 30.77%          |
| DE                      | Telekom Deutschland GmbH                  | 17,760,000         | 38,220,000               | 46.47%          |
|                         | Rest of operators                         | 20,460,000         |                          | 53.53%          |
| DK                      | TDC                                       | 339,097            | 439,847                  | 77.09%          |
|                         | Telia                                     | 54,683             |                          | 12.43%          |
|                         | Telenor                                   | 27,160             |                          | 6.17%           |
|                         | Rest of operators                         | 18,907             |                          | 4.30%           |
| EE                      | Telia                                     | 87,121             | 125,368                  | 69.49%          |
|                         | Elisa                                     | 6,368              |                          | 5.08%           |

| Country/<br>Participant | Operator                 | Number of<br>lines | Total number<br>of lines | Market<br>share |
|-------------------------|--------------------------|--------------------|--------------------------|-----------------|
|                         | Elisa Teleteenused       | 21,654             |                          | 17.27%          |
|                         | STV                      | 10,225             |                          | 8.16%           |
| EL                      | OTE                      | 2,646,139          | 4,645,310                | 56.96%          |
|                         | FORTHNET                 | Confidential       |                          | Confidential    |
|                         | VODAFONE                 | Confidential       |                          | Confidential    |
|                         | WIND                     | Confidential       |                          | Confidential    |
| ES                      | Telefónica de España     | 8,672,838          | 19,440,876               | 44.61%          |
|                         | Vodafone - ONO           | 4,338,908          |                          | 22.32%          |
|                         | Orange                   | 3,855,501          |                          | 19.83%          |
|                         | Grupo MASMOVIL           | 1,478,214          |                          | 7.60%           |
|                         | Euskaltel                | 768,955            |                          | 3.96%           |
|                         | Rest of operators        | 326,460            |                          | 1.68%           |
| FI                      | DNA Oyj                  | Confidential       | 269,000                  | Confidential    |
|                         | Elisa Oyj                | Confidential       |                          | Confidential    |
|                         | Telia Finland Oyj        | Confidential       |                          | Confidential    |
|                         | Rest of operators        | Confidential       |                          | Confidential    |
| FR                      |                          | N/A                | N/A                      | N/A             |
| HR                      | HT                       | Confidential       | 1,310,206                | Confidential    |
|                         | OPTIMA                   | Confidential       |                          | Confidential    |
|                         | A1                       | Confidential       |                          | Confidential    |
|                         | Rest of operators        | Confidential       |                          | Confidential    |
| HU                      | Magyar Telekom           | 1,449,296          | 3,032,000                | 47.80%          |
|                         | DIGI                     | 676,136            |                          | 22.30%          |
|                         | Vodafone                 | 657,944            |                          | 21.70%          |
|                         | Rest of operators        | 248,624            |                          | 8.20%           |
| IE                      | Eir                      | 545,625            | 1,375,126                | 39.68%          |
|                         | Virgin Media             | 319,864            |                          | 23.26%          |
|                         | Vodafone                 | 188,514            |                          | 13.71%          |
|                         | Sky                      | 186,877            |                          | 13.59%          |
|                         | Rest of operators        | 134,246            |                          | 9.76%           |
| IS                      | Siminn                   | 80,412             | 117,727                  | 68.30%          |
|                         | Vodafone                 | 37,315             |                          | 31.70%          |
| IT                      | TIM S.p.A.               | 8,980,698          | 19,472,741               | 46.12%          |
|                         | Vodafone Italia S.p.A.   | 3,035,640          |                          | 15.59%          |
|                         | Fastweb S.p.A.           | 2,674,113          |                          | 13.73%          |
|                         | Wind Tre S.p.A.          | 2,651,168          |                          | 13.61%          |
|                         | Linkem S.p.A.            | 653,574            |                          | 3.36%           |
|                         | Eolo S.p.A.              | 469,576            |                          | 2.41%           |
|                         | Rest of operators        | 1,007,972          |                          | 5.18%           |
| LI                      | Telecom Liechtenstein AG | Confidential       | 21,156                   | Confidential    |
|                         | Backbone Solutions AG    | Confidential       |                          | Confidential    |
|                         | Nexphone AG              | Confidential       |                          | Confidential    |
| LT                      | Telia Lietuva, AB        | 214,191            | 237,185                  | 90.31%          |

| Country/<br>Participant | Operator                        | Number of<br>lines | Total number<br>of lines | Market<br>share |
|-------------------------|---------------------------------|--------------------|--------------------------|-----------------|
|                         | UAB „CSC Telecom“               | 19,121             |                          | 8.06%           |
|                         | Other                           | 3,873              |                          | 1.63%           |
| LU                      | POST Telecom                    | 173,600            | 267,400                  | 64.92%          |
|                         | Proximus S.A.                   | 42,500             |                          | 15.89%          |
|                         | Luxembourg Online S.A.          | 17,900             |                          | 6.69%           |
|                         | Rest of operators               | 33,400             |                          | 12.49%          |
|                         |                                 |                    |                          |                 |
| LV                      | Tet (ex. Lattelecom)            | Confidential       | 225,236                  | 45.34%          |
|                         | Latvijas Mobilais Telefons      | Confidential       |                          | 18.49%          |
|                         | CSC TELECOM                     | Confidential       |                          | 9.22%           |
|                         | D-COM                           | Confidential       |                          | 5.48%           |
|                         | Rest of operators               | Confidential       |                          | 21.47%          |
| ME                      | Crnogorski Telekom              | 106,323            | 191,931                  | 55.40%          |
|                         | Mtel                            | 67,603             |                          | 35.22%          |
|                         | Telenor                         | 2,106              |                          | 1.10%           |
|                         | Telemach                        | 15,899             |                          | 8.28%           |
| MK                      | Makedonski Telekom              | 216,157            | 402,540                  | 53.70%          |
|                         | A1                              | 152,031            |                          | 37.77%          |
|                         | Telekabel TRD Robi              | 20,947             |                          | 5.20%           |
|                         | Rest of operators               | 13,405             |                          | 3.33%           |
| MT                      | Go plc                          | 150,688            | 290,151                  | 51.93%          |
|                         | Melita plc                      | 108,854            |                          | 37.52%          |
|                         | Vodafone Malta Ltd              | 24,853             |                          | 8.57%           |
|                         | Ozone                           | 836                |                          | 0.29%           |
|                         | Vanilla Telecoms Ltd            | 4,920              |                          | 1.70%           |
| NL                      | KPN                             | 2,656,100          | 5,659,000                | 46.94%          |
|                         | Vodafone/Ziggo                  | 2,406,000          |                          | 42.52%          |
|                         | T-Mobile/Tele2                  | 596,900            |                          | 10.55%          |
| NO                      | Telenor                         | 265,561            | 444,495                  | 59.74%          |
|                         | Telia                           | 66,352             |                          | 14.93%          |
|                         | Nextgentel                      | 29,014             |                          | 6.53%           |
|                         | Rest of operators               | 83,568             |                          | 18.80%          |
| PL                      | Orange Polska S.A               | Confidential       | 3,583,494                | Confidential    |
|                         | Netia S.A.                      | Confidential       |                          | Confidential    |
|                         | Multimedia Polska S.A.          | Confidential       |                          | Confidential    |
|                         | Multimedia Polska Poludnie S.A. | Confidential       |                          | Confidential    |
|                         | Rest of operators               | Confidential       |                          | Confidential    |
| PT                      | MEO                             | Confidential       | 5,147,990                | 45.03%          |
|                         | NOS Group                       | Confidential       |                          | 33.48%          |
|                         | Vodafone                        | Confidential       |                          | 17.77%          |
|                         | NOWO/ONI                        | Confidential       |                          | 3.10%           |
|                         | Rest of operators               | Confidential       |                          | 0.62%           |
| RO                      | Telekom RC S.A.                 | 1,142,457          | 3,163,429                | 36.11%          |
|                         | S.C. RCS&RDS S.A.               | 1,091,979          |                          | 34.52%          |

| Country/<br>Participant | Operator                       | Number of<br>lines | Total number<br>of lines | Market<br>share |
|-------------------------|--------------------------------|--------------------|--------------------------|-----------------|
|                         | S.C. VODAFONE ROMANIA S.A      | 815,059            |                          | 25.77%          |
|                         | ORANGE ROMANIA S.A.            | 113,934            |                          | 3.60%           |
| RS                      | Telekom Srbija                 | Confidential       | 2,574,299                | Confidential    |
|                         | Serbia Broadband               | Confidential       |                          | Confidential    |
|                         | Rest of operators              | Confidential       |                          | Confidential    |
| SE                      | Telia Company AB               | 871,338            | 1,750,989                | 49.76%          |
|                         | Tele2 Sverige AB inkl ComHem   | 296,749            |                          | 16.95%          |
|                         | Telavox AB                     | 133,458            |                          | 7.62%           |
|                         | Telenor Sverige AB             | 119,527            |                          | 6.83%           |
|                         | Rest of operators              | 329,917            |                          | 18.84%          |
| SI                      | Telekom Slovenije              | Confidential       | Confidential             | 50.42%          |
|                         | Telemach                       | Confidential       |                          | 20.22%          |
|                         | T-2                            | Confidential       |                          | 15.06%          |
|                         | A1 Slovenija                   | Confidential       |                          | 9.60%           |
|                         | Rest of operators              | Confidential       |                          | 4.70%           |
| SK                      | Slovak Telekom, a. s.          | Confidential       | 741,328                  | 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                   | 5,224,340          | 12,090,091               | 43.21%          |
|                         | TTNet                          | 4,895,414          |                          | 40.49%          |
|                         | Türksat                        | 440,737            |                          | 3.65%           |
|                         | Superonline                    | 219,544            |                          | 1.82%           |
|                         | Rest of operators              | 1,310,056          |                          | 10.84%          |
| XK*                     | Telekom of Kosovo SH.A.        | 26,792             | 54,440                   | 49.21%          |
|                         | IPKO TELECOMMUNICATIONS L.L.C. | 11,093             |                          | 20.38%          |
|                         | KUJTESA.NET SH.P.K.            | 1,003              |                          | 1.84%           |
|                         | mts d.o.o.                     | 15,552             |                          | 28.57%          |
| UK                      | BT                             | Confidential       | 26,515,976               | Confidential    |
|                         | TalkTalk                       | Confidential       |                          | Confidential    |
|                         | Sky                            | Confidential       |                          | Confidential    |
|                         | Virgin Media                   | Confidential       |                          | Confidential    |
|                         | Vodafone                       | Confidential       |                          | Confidential    |

#### Notes to table 6

**AT:** Number of lines as of end Q1/2020.

**BE:** Number of lines: data as of the 1st of January 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 1.7.2020 should be treated as confidential.

**CY:** Number of lines as of 31.12.2019.

**CZ:** The total number of lines as of 31th December 2019 is available as the latest information.

**DE:** number of lines are for end of year 2019.

**DK:** number of lines is of ultimo H2 2019.

**FI:** Market shares as of 1.1.2020. Volumes are confidential.

**HR :** Number of lines as of 2020 Q1.

**IE:** data as of 1<sup>st</sup> July 2020.

**IS:** Number of lines data from 1.1.2020 - mid year data not yet available.

**IT:** Number of lines are as of March 2020 (last available data).

**LT:** Data about number of lines as of 2019 IVQ.

**MT:** Data reflects the position as at Q1 2020.

**NO:** Number of subscribers are provided as of 1 January 2020, instead of number of lines per 1 July 2020. The number of subscribers per 1 July 2020 will not be available before Q4 2020.

**RS:** Number of lines are as of 31/12/2019. Number of lines are collected by using ITU indicator i112 Fixed-telephone subscriptions which refers to the sum of 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:** PTS has no information of the number of lines. Instead the number of subscriptions has been used, as of 19/12/31. PTS has no separate information regarding market shares (number of subscriptions) for single and double segments, respectively. The market shares represents 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 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.

## Annex 6 Average MTR per operator as of 1 July 2020

Table 7

| Country /Participant | Operator (B)                 | Average effective prices (eurocents) | Mobile Subscribers | Total mobile subscribers <sup>14</sup> | Real Mkt Shares |
|----------------------|------------------------------|--------------------------------------|--------------------|--|-----------------|
| AL                   | Telekom Albania              | 0.8915                               | 849,594            | 2,371,590                              | 35.82%          |
|                      | Vodafone Albania             | 0.8915                               | 1,133,063          |  | 47.78%          |
|                      | Albtelecom                   | 0.8915                               | 388,933            |  | 16.40%          |
| AT                   | A1Telekom Austria            | 0.8049                               | Confidential       | 10,673,244                             | 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       | 11,202,604                             | Confidential    |
|                      | Orange                       | 0.9900                               | Confidential       |  | Confidential    |
|                      | Telenet                      | 0.9900                               | Confidential       |  | Confidential    |
|                      | Full MVNO                    | 0.9900                               | Confidential       |  | Confidential    |
| BG                   | A1 Bulgaria                  | 0.7158                               | Confidential       | 7,937,828                              | Confidential    |
|                      | Telenor Bulgaria             | 0.7158                               | Confidential       |  | Confidential    |
|                      | BTC                          | 0.7158                               | Confidential       |  | Confidential    |
| CH                   | Swisscom                     | 2.6380                               | 4,870,000          | 8,721,916                              | 55.84%          |
|                      | Sunrise                      | 3.2033                               | 2,046,000          |  | 23.46%          |
|                      | Salt                         | 3.2033                               | 1,805,916          |  | 20.71%          |
| CY                   | CYTA                         | 0.1700                               | 638,071            | 1,212,150                              | 52.64%          |
|                      | EPIC CYPRUS Ltd              | 0.1700                               | 432,328            |  | 35.67%          |
|                      | PRIMETEL PLC                 | 0.1700                               | 126,374            |  | 10.43%          |
|                      | CABLENET                     | 0.1700                               | 15,377             |  | 1.27%           |
| CZ                   | T-Mobile Czech Republic a.s. | 0.9165                               | Confidential       | Confidential                           | 37.52%          |
|                      | O2 Czech Republic a.s.       | 0.9165                               | Confidential       |  | 28.19%          |
|                      | Vodafone Czech Republic a.s. | 0.9165                               | Confidential       |  | 26.15%          |
|                      | Nordic Telecom s.r.o.        | 0.9165                               | Confidential       |  | 0.10%           |
| DE                   | Telekom Deutschland GmbH     | 0.9000                               | N/A                | 107,200,000                            | N/A             |
|                      | Vodafone GmbH                | 0.9000                               |                    |  |                 |

<sup>14</sup> 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 /Participant | Operator (B)                      | Average effective prices (eurocents) | Mobile Subscribers | Total mobile subscribers <sup>14</sup> | Real Mkt Shares |
|----------------------|-----------------------------------|--------------------------------------|--------------------|--|-----------------|
|                      | Telefónica Germany GmbH & Co. OHG | 0.9000                               |                    |  |                 |
| DK                   | TDC                               | 0.5162                               | 2,833,501          | 7,243,465                              | 39.12%          |
|                      | Telenor                           | 0.5162                               | 1,420,105          |  | 19.61%          |
|                      | Telia                             | 0.5162                               | 1,098,634          |  | 15.17%          |
|                      | 3 (Hi3G)                          | 0.5162                               | 1,127,580          |  | 15.57%          |
|                      | Rest of the operators             | 0.5162                               | 763,645            |  | 10.54%          |
| EE                   | Telia Eesti AS                    | 0.7000                               | 831,684            | 1,915,815                              | 43.41%          |
|                      | Tele2 Eesti AS                    | 0.7000                               | 455,255            |  | 23.76%          |
|                      | Elisa Eesti AS                    | 0.7000                               | 628,876            |  | 32.83%          |
| EL                   | Cosmote                           | 0.6220                               | Confidential       | 11,361,645                             | Confidential    |
|                      | Vodafone                          | 0.6220                               | Confidential       |  | Confidential    |
|                      | WIND                              | 0.6220                               | Confidential       |  | Confidential    |
| ES                   | Movistar                          | 0.6400                               | 16,366,591         | 55,267,594                             | 29.61%          |
|                      | Orange                            | 0.6400                               | 13,727,522         |  | 24.84%          |
|                      | Vodafone                          | 0.6400                               | 12,422,064         |  | 22.48%          |
|                      | Masmovil                          | 0.6400                               | 7,346,486          |  | 13.29%          |
|                      | Rest of the operators             | 0.6400                               | 5,404,931          |  | 9.78%           |
| FI                   | DNA Oyj                           | 0.8900                               | Confidential       | 7,154,000                              | Confidential    |
|                      | Elisa Oyj                         | 0.8900                               | Confidential       |  | Confidential    |
|                      | Telia Finland Oyj                 | 0.8900                               | Confidential       |  | Confidential    |
|                      | Ålcom                             | 0.8900                               | Confidential       |  | Confidential    |
|                      | Rest of the operators             | 0.8900                               | Confidential       |  | Confidential    |
| FR                   | Orange                            | 0.7400                               | Confidential       | 77,030,000                             | Confidential    |
|                      | SFR                               | 0.7400                               |                    |  | Confidential    |
|                      | Bouygues Telecom                  | 0.7400                               |                    |  | Confidential    |
|                      | Free Mobile                       | 0.7400                               |                    |  | Confidential    |
|                      | MVNOs                             | 0.7400                               |                    |  | Confidential    |
| HR                   | HT                                | 0.5938                               | 2,004,866          | 4,359,507                              | 45.99%          |
|                      | A1                                | 0.5938                               | 1,508,850          |  | 34.61%          |
|                      | Tele 2                            | 0.5938                               | 845,791            |  | 19.40%          |
| HU                   | Magyar Telekom                    | 0.4864                               | Confidential       | 10,188,092                             | Confidential    |
|                      | Telenor                           | 0.4864                               | Confidential       |  | Confidential    |
|                      | Vodafone                          | 0.4864                               | Confidential       |  | Confidential    |
|                      | DIGI                              | 0.4864                               | Confidential       |  | Confidential    |
|                      | Netfone                           | 0.4864                               | Confidential       |  | Confidential    |
|                      | Tarr                              | 0.4864                               | Confidential       |  | Confidential    |
| IE                   | Vodafone                          | 0.5500                               | 1,786,162          | 5,067,250                              | 35.25%          |

| Country /Participant | Operator (B)               | Average effective prices (eurocents) | Mobile Subscribers | Total mobile subscribers <sup>14</sup> | Real Mkt Shares |
|----------------------|----------------------------|--------------------------------------|--------------------|--|-----------------|
|                      | Three Ireland Group        | 0.5500                               | 1,555,962          |  | 30.71%          |
|                      | Eircom Group Mobile        | 0.5500                               | 1,105,568          |  | 21.82%          |
|                      | Tesco Mobile               | 0.5500                               | 420,016            |  | 8.29%           |
|                      | Others (MVNOs)             | 0.5500                               | 199,542            |  | 3.94%           |
| IS                   | Siminn                     | 0.6560                               | 175,995            | 475,409                                | 37.02%          |
|                      | Vodafone                   | 0.6560                               | 129,384            |  | 27.22%          |
|                      | Nova                       | 0.6560                               | 156,234            |  | 32.86%          |
|                      | Hringdu                    | 0.6560                               | 13,796             |  | 2.90%           |
| IT                   | Wind Tre                   | 0.7600                               | 23,002,020         | 78,417,868                             | 29.33%          |
|                      | TIM                        | 0.7600                               | 21,098,205         |  | 26.90%          |
|                      | Vodafone Italia            | 0.7600                               | 19,245,223         |  | 24.54%          |
|                      | Iliad                      | 0.7600                               | 5,806,000          |  | 7.40%           |
|                      | PostePay                   | 0.7600                               | 4,209,400          |  | 5.37%           |
|                      | Rest of the operators      | 0.7600                               | 5,057,019          |  | 6.45%           |
| LI                   | Salt (Liechtenstein) AG    | 2.7322                               | Confidential       | 16,205                                 | Confidential    |
|                      | Telecom Liechtenstein AG   | 2.7322                               | Confidential       |  | Confidential    |
|                      | Swisscom (Schweiz) AG      | 2.7322                               | Confidential       |  | Confidential    |
| LT                   | Tele2                      | 0.9400                               | 1,920,109          | 4,636,990                              | 41.41%          |
|                      | Telia Lietuva, AB          | 0.9400                               | 1,354,285          |  | 29.21%          |
|                      | Bite Lietuva               | 0.9400                               | 1,201,645          |  | 25.91%          |
|                      | Rest of the operators      | 0.9400                               | 160,951            |  | 3.47%           |
| LU                   | Post Telecom S.A.          | 0.8900                               | 385,000            | 835,900                                | 46.06%          |
|                      | Proximus Luxembourg S.A.   | 0.8900                               | 280,400            |  | 33.54%          |
|                      | Orange S.A.                | 0.8900                               | 123,400            |  | 14.76%          |
|                      | Rest of the operators      | 0.8900                               | 47,100             |  | 5.63%           |
| LV                   | Bite Latvija, SIA          | 0.8868                               | Confidential       | 2,148,175                              | 23.02%          |
|                      | Latvijas Mobilais Telefons | 0.8868                               | Confidential       |  | 38.51%          |
|                      | Tele2, SIA                 | 0.8868                               | Confidential       |  | 38.48%          |
| ME                   | Telenor                    | 0.6700                               | 333,293            | 1,048,550                              | 31.79%          |
|                      | Crnogorski Telekom         | 0.6700                               | 353,288            |  | 33.69%          |
|                      | Mtel                       | 0.6700                               | 361,969            |  | 34.52%          |
| MK                   | Makedonski Telekom         | 1.0212                               | 897,576            | 1,897,408                              | 47.31%          |
|                      | A1                         | 1.0212                               | 946,205            |  | 49.87%          |

| Country /Participant | Operator (B)          | Average effective prices (eurocents) | Mobile Subscribers | Total mobile subscribers <sup>14</sup> | Real Mkt Shares |
|----------------------|-----------------------|--------------------------------------|--------------------|--|-----------------|
|                      | Lajkamobajl           | 1.0212                               | 37,185             |  | 1.96%           |
|                      | Telelabel TRD ROBI    | 1.0212                               | 16,442             |  | 0.87%           |
| MT                   | Go plc                | 0.4045                               | 235,394            | 633,412                                | 37.16%          |
|                      | Melita plc            | 0.4045                               | 153,512            |  | 24.24%          |
|                      | Vodafone Malta Ltd    | 0.4045                               | 244,485            |  | 38.60%          |
|                      | Yom Ltd               | 0.4045                               | 21                 |  | 0.00%           |
| NL                   | KPN                   | 0.5810                               | 6,424,000          | 22,416,000                             | 28.66%          |
|                      | Vodafone Ziggo        | 0.5810                               | 5,102,000          |  | 22.76%          |
|                      | T-Mobile/Tele2        | 0.5810                               | 5,590,000          |  | 24.94%          |
|                      | Rest of the operators | 0.5810                               | 5,300,000          |  | 23.64%          |
| NO                   | Telenor               | 0.2907                               | 2,745,031          | 5,775,830                              | 47.53%          |
|                      | Telia                 | 0.2907                               | 2,084,777          |  | 36.09%          |
|                      | ICE                   | 0.2907                               | 572,956            |  | 9.92%           |
|                      | Com4                  | 0.2907                               | 0                  |  | 0.00%           |
|                      | Rest of the operators | 0.0000                               | 373,066            |  | 6.46%           |
| PL                   | Orange Polska S.A.    | 0.9528                               | Confidential       | 48,392,944                             | Confidential    |
|                      | Polkomtel sp. z o.o.  | 0.9528                               | Confidential       |  | Confidential    |
|                      | P4 sp. z o.o.         | 0.9528                               | Confidential       |  | Confidential    |
|                      | T-Mobile Polska S.A.  | 0.9528                               | Confidential       |  | Confidential    |
|                      | Rest of the operators | 0.0000                               | Confidential       |  | Confidential    |
| PT                   | MEO                   | 0.3600                               | Confidential       | 10,322,962                             | 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                               | 6,504,002          | 21,983,813                             | 29.59%          |
|                      | ORANGE ROMANIA S.A.   | 0.7600                               | 8,420,178          |  | 38.30%          |
|                      | TELEKOM RMC S.A.      | 0.7600                               | 2,854,542          |  | 12.98%          |
|                      | RCS & RDS S.A.        | 0.7600                               | 3,316,278          |  | 15.09%          |
|                      | TELEKOM RC S.A.       | 0.7600                               | 868,745            |  | 3.95%           |
|                      | Rest of the operators | 0.0000                               | 20,068             |  | 0.09%           |
| RS                   | Telekom Srbija (MTS)  | 1.2162                               | Confidential       | 8,453,887                              | 44.30%          |
|                      | Telenor               | 1.2162                               | Confidential       |  | 31.40%          |

| Country /Participant | Operator (B)                 | Average effective prices (eurocents) | Mobile Subscribers | Total mobile subscribers <sup>14</sup> | Real Mkt Shares |
|----------------------|------------------------------|--------------------------------------|--------------------|--|-----------------|
|                      | Vip mobile                   | 1.2162                               | Confidential       |  | 24.00%          |
| SE                   | Telia Company                | 0.2028                               | 5,003,790          | 14,448,387                             | 34.63%          |
|                      | Tele2                        | 0.2028                               | 4,120,473          |  | 28.52%          |
|                      | Telenor                      | 0.2028                               | 2,759,840          |  | 19.10%          |
|                      | Hi3G                         | 0.2028                               | 2,019,832          |  | 13.98%          |
|                      | Lycamobile                   | 0.2028                               | 194,832            |  | 1.35%           |
|                      | Telavox AB                   | 0.2028                               | 92,297             |  | 0.64%           |
|                      | Rest of the operators        | 0.2028                               | 257,323            |  | 1.78%           |
| SI                   | Telekom Slovenije            | 0.8820                               | Confidential       | Confidential                           | 39.82%          |
|                      | A1 Slovenija                 | 0.8820                               | Confidential       |  | 30.84%          |
|                      | Telemach                     | 0.8820                               | Confidential       |  | 23.09%          |
|                      | T-2                          | 0.8820                               | Confidential       |  | 6.24%           |
| SK                   | O2 Slovakia, s.r.o.          | 0.8180                               | Confidential       | 6,232,102                              | Confidential    |
|                      | Orange Slovensko, a.s.       | 0.8180                               | Confidential       |  | Confidential    |
|                      | Slovak Telekom, a.s.         | 0.8180                               | Confidential       |  | Confidential    |
|                      | SWAN Mobile, a.s.            | 0.8180                               | Confidential       |  | Confidential    |
| TR                   | Turkcell                     | 0.3303                               | 31,129,446         | 76,377,169                             | 40.76%          |
|                      | Vodafone                     | 0.3409                               | 23,865,130         |  | 31.25%          |
|                      | TT Mobil (Avea)              | 0.3911                               | 21,382,593         |  | 28.00%          |
| XK*                  | Telecom of Kosovo JSC        | 1.1460                               | 1,113,214          | 1,843,854                              | 60.37%          |
|                      | Ipko Telecommunications LLC  | 1.1460                               | 699,163            |  | 37.92%          |
|                      | Dukagjini telecommunications | 1.1460                               | 52                 |  | 0.00%           |
|                      | mts d.o.o.                   | 1.1460                               | 31,425             |  | 1.70%           |
| UK                   | EE                           | 0.5565                               | Confidential       | 79,148,841                             | Confidential    |
|                      | Telefonica                   | 0.5565                               | Confidential       |  | Confidential    |
|                      | Vodafone                     | 0.5565                               | Confidential       |  | Confidential    |
|                      | H3G                          | 0.5565                               | Confidential       |  | Confidential    |

#### Notes to Table 7

**AT:** Individual operator subscriber data are strictly confidential.

**BG:** Data as of 01.07.2020. Individual data on number of subscribers/M2M SIM Cards by operators are confidential. M2M, M2P and data-only SIMs cards are not included in the figure of total mobile subscribers.

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

from 01.01.2020 – 0.014 BGN/minute

According CRC's Decision 266/23.07.2020, until the adoption 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 0.014), determined by BU-LRIC model adopted with CRC's Decision 585/24.11.2016. No MTRs peak/off-peak differentiation.

**CH:** Subscriber base as of 30.06.2020. MTRs are not regulated in 2020.

**CY:** Subscribers as of 31.12.2019.

**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 2019 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 2019 and is not available by individual operator. BNetzA's glide path differs from the periods specified above:

from 01.12.2019 until 30.11.2020: 0.90 eurocent

from 01.12.2020 until 30.11.2021: 0.78 eurocent

from 01.12.2021 until 31.12.2022: 0.70 eurocent

The tariffs may be revoked in case of a delegated union wide maximum mobile termination rate by the European Commission.

**DK:** Total Subscribers is derived as of ultimo H2 2019. Usually the DBA issues MTR ultimo any year for the entire following year. However, due to the EU MTR will be applicable for use from 1/1/2021, DBA has decided to reuse the 2019 rate for 2020.

**EL:** According to EETT's relevant decision, the regulated rate included in the table 8 for the years after 2020 might be adjusted taking into account EC's delegated Act according to EECC's provisions.

**FI:** Subscriber and M2M figures per operator are confidential. Subscriber figures per 01.01.2020. Subscriber figures depict the number of subscriptions not SIM cards. Subscription figures include all subscriptions other than data-only subscriptions. SIM card volumes are very close to the subscription number in Finland. Traficom 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.

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

01.12.2018 MTRs will be 0.93 eurocent /minute

01.12.2019 MTRs will be 0.89 eurocent /minute

01.12.2020 MTRs will be 0.82 eurocent /minute

Ålcom will follow the same glide path.

**FR:** Subscribers' base and M2M SIM Cards Volume per operator are confidential data. Only aggregated market data are provided.

**HR:** Data reflects as at Q1 2020.

**MK:** Glide path not defined, MTR's calculated based on developed BU Pure LRIC model, regularly updated with new data

**IS:** Subscriber data form 01.01.2020, most recent data available.

**LI:** Operator specific information on MTR and Market Share is confidential. Market analysis M7 and MTR decisions are available on : <https://www.ilv.li/inhalt/111026/amtsstellen/m7>. 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.

**LT:** Right now MTR is 0.94 eurocent, and is based on average of pure BU-LRIC by other countries. We are going to set MTR of 0.76 eurocent based on average of pure BU-LRIC by other countries on 01.01.2021. Data about subscribers as of 2020 IIQ.

**LU:** Data as of 31.12.2019. 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.

**LV:** Operator data on the number of subscribers and the number of lines are restricted information and are not intended for publication.

**MT:** Data reflects as at Q1 2020.

**NO:** Number of subscribers and market share are provided as of 1 January 2020. The total number of subscribers per 01 July 2020 will be available in Q4 2020.

**PT:** Information on the number of subscribers of each operator is confidential. The number of subscribers is according to the definition and it only considers users that have effectively used the service in the last 30 days. 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. According to this decision, in 01.07.2020 the MTRs was updated on the basis of existing and foreseen inflation data.

**RS:** Information on individual's number of subscribers by operator is confidential. Number of subscribers are as of 31/12/2019 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. Mobile dongles and tablet subscriptions should be excluded.) 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:** Subscriber numbers, market shares and numbers for M2M SIM Cards are given for 31.12.2019, 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. RU does not apply any glide path.

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

**XK:** MTR regulation based on benchmarking methodology. The proposed MTR glide path is as follow: Jul 2020 = 1.046 eurocent, January 2021 = 0.996 eurocent and January 2022 = 0.946 eurocent. The draft decisions are on public consultation which will end on 6th of September 2020.

## **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 2019. 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 mobile networks during 2019. 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 these information.

**IE:** Total MTR minutes 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 2019).

**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 calls that are originated from national operators.

**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. For these reasons, the average revenue per minute is higher than the current maximum regulated value for EEA traffic.

**RS:** Data provided are for the whole 2019 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.

**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.

**SK:** The total MTR revenue consists of the revenue calculated at the original MTR (0.01226 eurocent) until 30.06.2019 with the arithmetic average of minutes for the next month (MTR 0.01226 eurocent) and the revenue from the arithmetic average of minutes for other five months with the new MTR (0.00818 eurocent).



## Annex 8 Regulatory model implemented to calculate MTRs

Table 8

| Jul-20 | COST ACCOUNTING MODEL |               |   |   |   |   |   |   |
|--------|-----------------------|---------------|---|---|---|---|---|---|
|        | Model                 | Rate status   | When a tariff adopted by a final decision and meeting the standards of the TR Recommendation has been or will be firstly applied? | Period 1 - From 01/07/2020 until 31/12/2020 | Period 2 - From 01/01/2021 until 30/06/2021 | Period 3 - From 01/07/2021 until 31/12/2021 | Period 4 - From 01/01/2022 until 30/06/2022 | Period 5 - From 01/07/2022 until 31/12/2022 |
| AL     | Benchmark BU-LRIC     | adopted       | 16.06.2020  | 0.8915                                      | 0.8915                                      | 0.8915                                      |   |   |
| AT     | Pure BU-LRIC          | adopted       |   | 0.8049                                      |   |   |   |   |
| BE     | Pure BU-LRIC          | adopted       | 01.01.2013  | 0.9900                                      |   |   |   |   |
| BG     | Pure BU-LRIC          | adopted       | 01.12.2016  |   |   |   |   |   |
| CH     |                       | not regulated | not applicable  |   |   |   |   |   |
| CY     | Pure BU-LRIC          | adopted       | 01.01.2018  | 0.1700                                      |   |   |   |   |
| CZ     | Pure BU-LRIC          | adopted       | 01.07.2013  |   |   |   |   |   |
| DE     | Pure BU-LRIC          | adopted       | 01.01.2020  | 0.9000                                      | 0.7800                                      | 0.7800                                      | 0.7000                                      | 0.7000                                      |
| DK     | Pure BU-LRIC          | adopted       |   | 0.5162                                      | Unknown                                     | Unknown                                     | Unknown                                     |   |
| EE     | Benchmark BU-LRIC     | adopted       | 07.05.2020  | 0.7000                                      |   |   |   |   |
| EL     | Pure BU-LRIC          | adopted       | 01.01.2013  | 0.6220                                      | 0.6220                                      | 0.6220                                      | 0.6220                                      | 0.6220                                      |
| ES     | Pure BU-LRIC          | adopted       | 05.10.2012  | 0.6400                                      | 0.6400                                      | 0.6400                                      |   |   |
| FI     | Other (FDC/FAC)       | adopted       |   | 0.8900                                      | 0.8200                                      |   |   |   |
| FR     | Pure BU-LRIC          | adopted       | 01.01.2013  |   |   |   |   |   |
| HR     | Pure BU-LRIC          | adopted       | 01.01.2015  | 0.5938                                      |   |   |   |   |
| HU     | Pure BU-LRIC          | adopted       | 01.04.2015  | 0.4864                                      | not decided                                 | not decided                                 |   |   |
| IE     | Pure BU-LRIC          | adopted       |   | 0.5500                                      | 0.4300                                      | 0.4300                                      | 0.3100                                      | 0.3100                                      |
| IS     | Benchmark BU-LRIC     | adopted       |   | 0.6560                                      | 0.6432                                      | 0.6432                                      |   |   |
| IT     | Pure BU-LRIC          | adopted       | 01.07.2013  | 0.7600                                      | 0.6700                                      | 0.6700                                      | -   |   |

| Jul-20 | COST ACCOUNTING MODEL |             |   |   |   |   |   |   |
|--------|-----------------------|-------------|---|---|---|---|---|---|
|        | Model                 | Rate status | When a tariff adopted by a final decision and meeting the standards of the TR Recommendation has been or will be firstly applied? | Period 1 - From 01/07/2020 until 31/12/2020 | Period 2 - From 01/01/2021 until 30/06/2021 | Period 3 - From 01/07/2021 until 31/12/2021 | Period 4 - From 01/01/2022 until 30/06/2022 | Period 5 - From 01/07/2022 until 31/12/2022 |
| LI     | Pure BU-LRIC          | adopted     |   |   |   |   |   |   |
| LT     | Benchmark (BU-LRIC)   | adopted     | 01.04.2016  | 0.9400                                      | 0.7600                                      |   |   |   |
| LU     | Pure BU-LRIC          | adopted     | 09.06.2017  |   |   |   |   |   |
| LV     | Pure BU-LRIC          | adopted     | 26.04.2017  | 0.8868                                      | 0.8868                                      | 0.8868                                      |   |   |
| ME     | Other (TD LRIC)       | adopted     |   |   |   |   |   |   |
| MK     | Pure BU LRIC          | adopted     | 2010  |   |   |   |   |   |
| MT     | Pure BU-LRIC          | adopted     |   |   |   |   |   |   |
| NL     | Pure BU-LRIC          | adopted     | 01.07.2017  | 0.5810                                      | 0.5810                                      | 0.5810                                      |   |   |
| NO     | Pure BU-LRIC          | adopted     | 01.07.2015  |   |   |   |   |   |
| PL     | Pure BU-LRIC          | adopted     | 01.07.2013  | 0.9528                                      | 0.9528                                      | 0.9528                                      |   |   |
| PT     | Pure BU-LRIC          | adopted     | 31.12.2012  | 0.3600                                      | 0.3600                                      |   |   |   |
| RO     | Benchmark BU-LRIC     | adopted     | 01.04.2014  | 0.7600                                      |   |   |   |   |
| RS     | Benchmarking (other)  |             |   |   |   |   |   |   |
| SE     | Pure BU-LRIC          | adopted     | 01.07.2013  | 0.2028                                      |   |   |   |   |
| SI     | Pure BU-LRIC          | adopted     | from 01.09.2014 for 1.14 Euro/cents / from 01.08.2020 for 0.882 Euro/cents  | 0.8820                                      |   |   |   |   |
| SK     | Pure BU-LRIC          | adopted     | 01.08.2019  |   |   |   |   |   |
| TR     | Confidential          |             |   |   |   |   |   |   |
| XK*    | Benchmarking (other)  | adopted     |   |   |   |   |   |   |
| UK     | Pure BU-LRIC          | adopted     |   | 0.5384                                      |   |   |   |   |

Additionally please see Notes to Table 7.

## Annex 9 SMS TR per country as of 1 July 2020

Table 9

| Country/<br>Participant | Operator (B)                      | SMS TR as of<br>1 July 2020<br>(eurocents) | Volumes of SMS<br>globally sent in<br>2019 <sup>15</sup> (millions) | Number of<br>subscribers as of<br>31.12.2019 <sup>16</sup><br>(millions) |
|-------------------------|-----------------------------------|--|---|--|
| AL                      | Telekom Albania                   | 0.8031                                     | 967.800   | 2.630  |
|                         | Vodafone Albania                  |  |   |  |
|                         | Albtelecom                        |  |   |  |
| AT                      | A1Telekom Austria                 | 1.5217                                     | 1849.000  | 12.936   |
|                         | T-Mobile Austria                  |  |   |  |
|                         | Hutchison Drei Austria            |  |   |  |
| BE                      | Proximus                          | 4.9600                                     | 17838.685   | 11.917   |
|                         | Orange                            |  |   |  |
|                         | Telenet                           |  |   |  |
| BG                      | A1 Bulgaria                       | Confidential                               | 412.167   | 8.135  |
|                         | Telenor Bulgaria                  |  |   |  |
|                         | BTC                               |  |   |  |
| CH                      | Swisscom-Salt                     | Confidential                               | 1138.000  | 8.722  |
|                         | Swisscom-Sunrise                  |  |   |  |
|                         | Salt-Sunrise                      |  |   |  |
| CY                      | CYTA                              | 0.5470                                     | 981.750   | 1.130  |
|                         | Primetel                          | 0.7300                                     |   |  |
| CZ                      | T-Mobile Czech Republic a.s.      | Confidential                               | 7645.181  | 14.711   |
|                         | O2 Czech Republic a.s.            |  |   |  |
|                         | Vodafone Czech Republic a.s.      |  |   |  |
|                         | Nordic Telecom s.r.o.             |  |   |  |
| DE                      | Telekom Deutschland GmbH          | N/A  | 7900.000  | 136900.000   |
|                         | Vodafone GmbH                     |  |   |  |
|                         | Telefónica Germany GmbH & Co. OHG |  |   |  |
| DK                      | TDC                               | N/A  | 5325.000  | 8.380  |
|                         | Telenor                           |  |   |  |
|                         | Telia                             |  |   |  |
|                         | 3 (Hi3G)                          |  |   |  |
| EE                      | Telia Eesti AS                    | 2.6000                                     | 768.000   | 1.951  |
|                         | Tele2 Eesti AS                    |  |   |  |
|                         | Tele2 Eesti AS                    |  |   |  |

<sup>15</sup> Volume data refers to 2019, unless otherwise stated in the Notes of Annex 9

<sup>16</sup> Including M2M, M2P and data-only SIMs cards.

| Country/<br>Participant | Operator (B)        | SMS TR as of<br>1 July 2020<br>(eurocents) | Volumes of SMS<br>globally sent in<br>2019 <sup>15</sup> (millions) | Number of<br>subscribers as of<br>31.12.2019 <sup>16</sup><br>(millions) |
|-------------------------|---------------------|--|---|--|
|                         | Elisa Eesti AS      |  |   |  |
|                         | Elisa Eesti AS      |  |   |  |
| EL                      | Cosmote             | Confidential                               | 2357.708  | 11.882   |
|                         | Vodafone            |  |   |  |
|                         | WIND                |  |   |  |
| ES                      | Movistar            | Confidential                               | 868.497   | 55.268   |
|                         | Vodafone            |  |   |  |
|                         | Orange              |  |   |  |
|                         | Masmovil            |  |   |  |
| FI                      | DNA Oyj             | N/A  | 1559.000  | 9.260  |
|                         | Elisa Oyj           |  |   |  |
|                         | Telia Finland Oyj   |  |   |  |
|                         | Ålcom               |  |   |  |
| FR                      | Orange              | 1.0000                                     | 159827.000  | 75.000   |
|                         | SFR                 |  |   |  |
|                         | Bouygues Telecom    |  |   |  |
|                         | Free Mobile         |  |   |  |
|                         | MVNOs               |  |   |  |
| MK                      | Makedonski Telekom  | 3.2418                                     | 361.235   | 1.921  |
|                         | A1                  |  |   |  |
|                         |                     |  |   |  |
| HR                      | HT                  | N/A  | 1836.896  | 4.405  |
|                         | A1                  |  |   |  |
|                         | Tele2               |  |   |  |
| HU                      | Magyar Telekom      | Confidential                               | 1396.000  | 10.700   |
|                         | Telenor             |  |   |  |
|                         | Vodafone            |  |   |  |
| IE                      | Vodafone            | N/A  | 3637.877  | 6.669  |
|                         | Three Ireland Group |  |   |  |
|                         | Eircom Group Mobile |  |   |  |
|                         | Tesco Mobile        |  |   |  |
| IS                      | Siminn              | 2.4762                                     | 187.997   | 0.476  |
|                         | Vodafone            |  |   |  |
|                         | Nova                |  |   |  |
|                         | Hringdu             |  |   |  |
| IT                      | Telecom Italia      | Confidential                               | 5957.210  | 79.598   |
|                         | Vodafone            |  |   |  |
|                         | WindTre             |  |   |  |
|                         | Iliad               |  |   |  |
|                         | Poste Pay           |  |   |  |
|                         | Fastweb             |  |   |  |
|                         | BT Italia           |  |   |  |
|                         | Digi Italy          |  |   |  |

| Country/<br>Participant | Operator (B)               | SMS TR as of<br>1 July 2020<br>(eurocents) | Volumes of SMS<br>globally sent in<br>2019 <sup>15</sup> (millions) | Number of<br>subscribers as of<br>31.12.2019 <sup>16</sup><br>(millions) |
|-------------------------|----------------------------|--|---|--|
|                         | Lycamobile                 |  |   |  |
|                         | Welcome Italia             |  |   |  |
|                         | Noverca                    |  |   |  |
| LI                      | Salt (Liechtenstein) AG    | 0.0000                                     | 0.926   | 0.015  |
|                         | Telecom Liechtenstein AG   | 5.8413                                     |   |  |
|                         | Swisscom                   | 8.4794                                     |   |  |
| LT                      | Tele2                      | 0.0000                                     | 3249.000  | 4,7  |
|                         | Telia Lietuva, AB          | 0.0000                                     |   |  |
|                         | Bite Lietuva               | 0.0000                                     |   |  |
| LU                      | Post Télécom               | N/A  | 540.000   | 0.836  |
|                         | Tango                      |  |   |  |
|                         | Orange                     |  |   |  |
| LV                      | Bite Latvija               | N/A  | 1205.815  | 2.072  |
|                         | Latvijas Mobilais Telefons |  |   |  |
|                         | Tele2                      |  |   |  |
|                         | Zetcom                     |  |   |  |
| ME                      | Telenor                    | 1.0000                                     | 318.608   | 1.049  |
|                         | Crnogorski Telekom         |  |   |  |
|                         | Mtel                       |  |   |  |
| MT                      | Go Mobile                  | 1.7709                                     | 235.269   | 0.634  |
|                         | Melita Mobile              | 1.6784                                     |   |  |
|                         | Vodafone Mobile            | 3.6318                                     |   |  |
| NL                      | KPN                        | N/A  | 3180.000  | 21.700   |
|                         | Vodafone Ziggo             |  |   |  |
|                         | T-Mobile                   |  |   |  |
|                         | Tele2                      |  |   |  |
| NO                      | Telenor                    | 3.1794                                     | 4628.803  | 5.776  |
|                         | Telia                      |  |   |  |
|                         | ICE                        |  |   |  |
| PL                      | Polkomtel sp. z o.o.       | 1.1104                                     | 46332.501   | 52.215   |
|                         | P4 sp. z o.o.              |  |   |  |
|                         | T-Mobile Polska S.A.       |  |   |  |
|                         | Orange Polska S.A.         |  |   |  |
| PT                      | MEO                        | Confidential                               | 14729.284   | 10.715   |
|                         | NOS                        |  |   |  |
|                         | Vodafone                   |  |   |  |
| RO                      | VODAFONE ROMANIA S.A.      | Confidential                               | 6128.000  | 22.671   |
|                         | ORANGE ROMANIA S.A.        |  |   |  |
|                         | TELEKOM RMC S.A.           |  |   |  |
|                         | RCS & RDS S.A.             |  |   |  |
|                         | Telekom RC                 |  |   |  |
|                         | Iristel                    |  |   |  |

| Country/<br>Participant | Operator (B)           | SMS TR as of<br>1 July 2020<br>(eurocents) | Volumes of SMS<br>globally sent in<br>2019 <sup>15</sup> (millions) | Number of<br>subscribers as of<br>31.12.2019 <sup>16</sup><br>(millions) |
|-------------------------|------------------------|--|---|--|
|                         | Compatel               |  |   |  |
| RS                      | Telekom Srbija (MTS)   | 1.7010                                     | 6239.000  | 8.454  |
|                         | Telenor                |  |   |  |
|                         | 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                                     | 2.722   | 6.163  |
|                         | Orange Slovensko, a.s. |  |   |  |
|                         | O2 Slovakia s.r.o.     |  |   |  |
|                         | SWAN Mobile, a.s.      |  |   |  |
| TR                      | Turkcell               | 0.0568                                     | 62077.329   | 80.791   |
|                         | Vodafone               | 0.0568                                     |   |  |
|                         | TT Mobil (Avea)        | 0.0621                                     |   |  |
| UK                      | EE                     | 1.8291                                     | 73467.000   | 84.000   |
|                         | Telefonica             |  |   |  |
|                         | Vodafone               |  |   |  |
|                         | H3G                    |  |   |  |
| XK*                     |                        | N/A  | 0.000   | 0.000  |

### Notes to Table 9

**AL:** The reported SMS termination rates are effective since 1.4.2014, based on AKEP market analysis and SMP decisions for mobile SMS termination.

**AT:** SMS Wholesale: Due to lack of data the figure is calculated on the basis of average revenue per sms.

**BG:** Number of subscribers as of 31.12.2019. The SMS call termination rates data is confidential.

**CH:** The data is confidential.

**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: 14,711 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 13,101 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.

**EL:** The data is confidential.

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

**FI:** SMS termination rates are not regulated in Finland. Since definitions used by Traficom have been further defined, the numbers of the whole time series have been corrected retrospectively according to the new definitions. Therefore, the numbers reported here for years 2015-2018 might slightly differ from the numbers reported in 2019.

**MK:** SMS call termination rates are not regulated.

**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:** All operators charge the same SMS termination rate.

**IS:** SMS termination is not regulated, has been the same for years.

**IT:** The rates are as of July 2019, because more updated data are not available at the moment. Information on the SMS call termination rates per operator is confidential.

**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.

**MT:** Data reflects as at Q1 2020 (January - March 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 requirement for 0.0250 EUR rate.

**UK:** Data for UK are not updated.

**XK\*:** The operators in Kosovo do not charge termination rate for SMS.

## **Annex 10 Abbreviations and Exchange rates**

**Table 10 – Abbreviations**

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

**Table 11 – Exchange Rates<sup>17</sup>**

| <b>COUNTRY</b> | <b>1 EURO</b>   |
|----------------|-----------------|
| <b>AL</b>      | <b>124,5102</b> |
| <b>BG</b>      | <b>1,9558</b>   |
| <b>CH</b>      | <b>1,0614</b>   |
| <b>CZ</b>      | <b>27,0580</b>  |
| <b>DK</b>      | <b>7,4579</b>   |
| <b>HR</b>      | <b>7,5783</b>   |
| <b>HU</b>      | <b>351,5800</b> |
| <b>IS</b>      | <b>155,4800</b> |
| <b>LI</b>      | <b>1,0614</b>   |
| <b>MK</b>      | <b>61,6950</b>  |
| <b>NO</b>      | <b>11,0082</b>  |
| <b>PL</b>      | <b>4,5027</b>   |
| <b>RO</b>      | <b>4,8378</b>   |
| <b>RS</b>      | <b>117,5800</b> |
| <b>SE</b>      | <b>10,6507</b>  |
| <b>TR</b>      | <b>7,5688</b>   |
| <b>UK</b>      | <b>0,8608</b>   |

<sup>17</sup> ECB website, <https://sdw.ecb.europa.eu/browse.do?node=9691296>



## Annex 11 Glossary

|               |                                   |
|---------------|-----------------------------------|
| <b>Avg(S)</b> | Simple average                    |
| <b>Avg(W)</b> | Weighted average                  |
| <b>FTR</b>    | Fixed Termination Rate            |
| <b>MTR</b>    | Mobile terminate rate             |
| <b>NRA</b>    | National Regulatory Authority     |
| <b>SMS</b>    | Short Message Service             |
| <b>TR</b>     | Termination Rate                  |
| <b>TD</b>     | Top Down                          |
| <b>BU</b>     | Bottom Up                         |
| <b>LRIC</b>   | Long Run Incremental Cost         |
| <b>LRAIC</b>  | Long Run Average Incremental Cost |
| <b>FAC</b>    | Fully Allocated Cost              |
| <b>CCA</b>    | Current Cost Accounting           |
| <b>FDC</b>    | Fully Distributed Cost            |
| <b>LRR</b>    | Lowest Regulated Rate             |