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**PROGRESS REPORT ON THE SINGLE EUROPEAN ELECTRONIC  
COMMUNICATIONS MARKET 2007 (13th REPORT)**

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## SOURCES OF DATA PRESENTED IN THIS ANNEX

Figures about the market in sections 1 (mobile interconnection, mobile operators, mobile number portability), 2 (fixed market, fixed number portability), 3 (prices for LLU), 4 (bundled offers), and 5 (broadcasting) were provided by the National Regulatory Authorities (NRAs) in response to a questionnaire on regulatory market data sent by the Commission in July 2007.

Data on mobile subscribers (section 1) refer to October 2007 and come from the NRAs unless otherwise specified.

Data in section 3 on broadband access are provided by the NRAs and the national ministries through the Electronic Communications Committee (COCOM). Data have been collected from July 2002 to July 2007 three times a year, in January, June and October, whereas from July 2007 onwards they will be collected in January and July only. The latest figures in this report refer to 1 January 2008 unless otherwise specified.

Price information in sections 1 (mobile tariffs), 2 (PSTN tariffs) and 6 (retail leased lines prices) and partly in section 3 (not for unbundled local loop) is taken from a study carried out for the Commission by Teligen, Harris Interactive UK Ltd. These data are collected from primary sources (i.e. directly from the incumbent operators and new entrants) and checked by the NRAs. All NRAs, with the exception of Italy and Hungary provided comments and approved these data.

A validation meeting with representatives from NRAs and the Commission Services took place in November 2007. Furthermore, a draft version of the charts in this annex (excluding data on tariffs and broadband) was distributed to the NRAs before this report was finalised.

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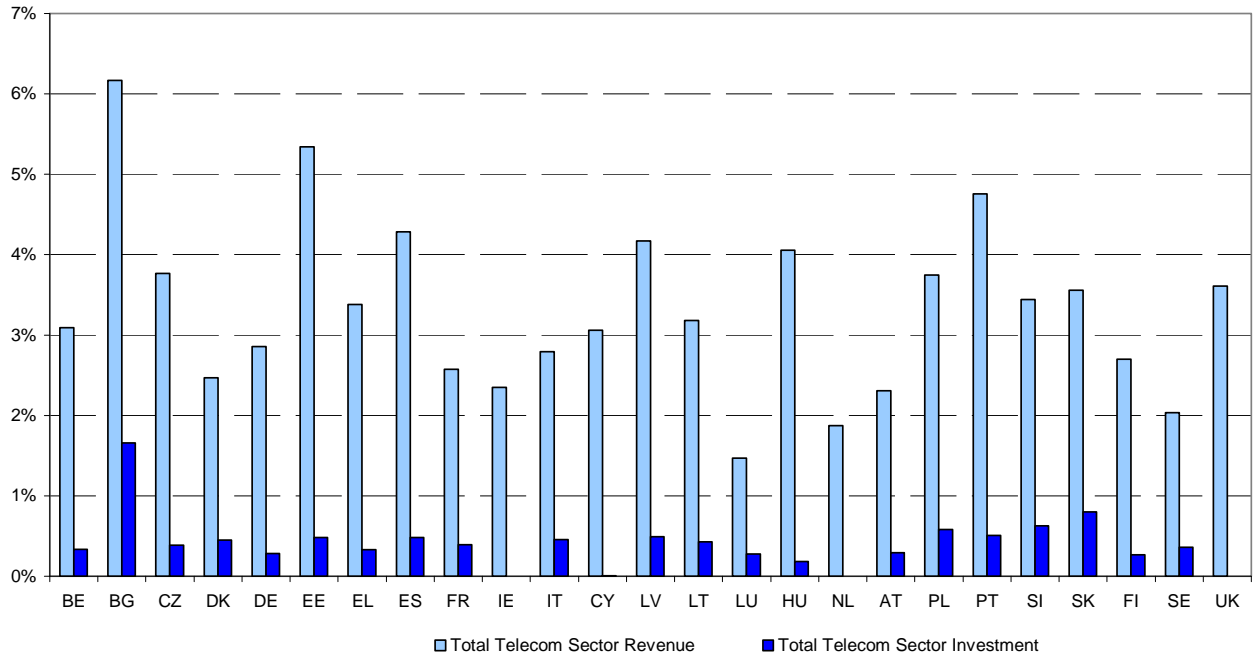
## INTRODUCTION: MARKET INDICATORS

In this introduction, for the first time some economic indicators in the market are presented.

The first graph is the telecom revenue and investment over GDP (constant prices) for 2006 in the EU. The total telecom sector revenue for 2006 represents 3% of the European GDP at constant prices for 2006. Investment in the telecom sector represents 9.85% of the revenues in the market. Alternative fixed operators are responsible of 42.92% of the investment, while they account for 32.23% of the market in terms of revenues.

Figure 1

Telecom Revenue and Investment over GDP, 2006  
EU Telecom Revenue Average: 3% GDP

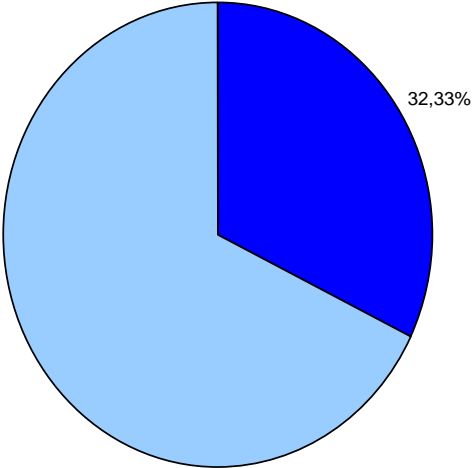




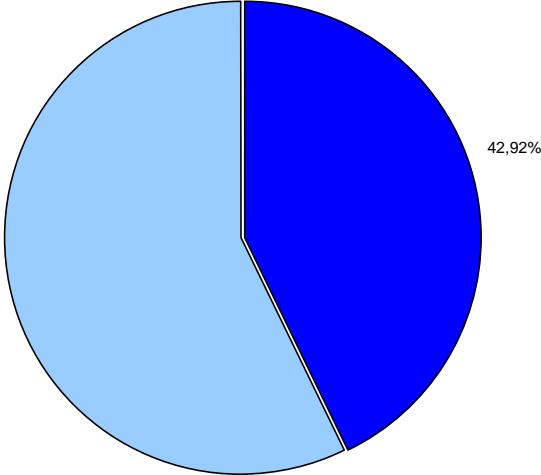
This second graph compares the average alternative fixed operators' investment in the fixed market and their market share 2006 in the EU.

**Figure 2**

**Market Share of alternative fixed operators by revenues,  
December 2006  
all types of calls**



**Part of alternative operators on total telecom market investment,  
December 2006**



## 1 MOBILE MARKET

This section provides information on the number of mobile subscribers and the penetration rate for mobile telephony services. It also shows the number of both

mobile network operators and mobile service providers as well as the market share of the main players in each Member State.

### 1.1. MOBILE PENETRATION

This section provides information on the number of mobile subscribers and the penetration rate for mobile telephony services in each Member State. The growth in the penetration rate since 2004 is also shown.

Where available, data have been provided by the National Regulatory Authorities (NRAs).

The EU average is a weighted average.

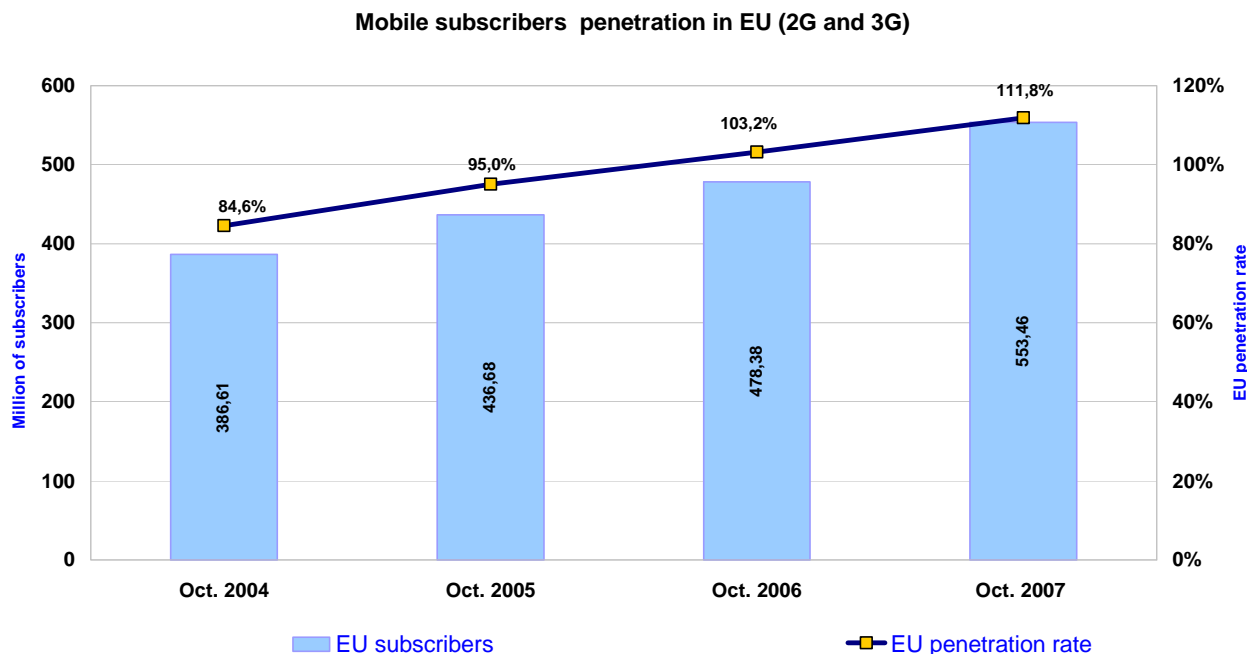
It should be noted that operators and regulators use different methods to count the number of subscribers.

Some regulators distinguish between the overall number of mobile subscribers and the number of active subscribers. The table indicates where this information is available. Some operators consider the total number of users that have made or received a call or sent an SMS in the last 9 or 6 months, whereas others only consider the active users of the last 3 months. This has an impact on the penetration rate, especially in small countries

The chart below displays the number of mobile subscribers in the EU between 2004 and 2007. In October 2007 there were around 553.46 million mobile subscribers, with an increase of more than 80 million since October 2006 (+15.69%, but this year 2 new

Member States, Bulgaria and Romania accounting for more than 30 million subscribers are taken into account). Penetration rate is almost 112% of EU population (+8.6 percentage points since last year).

Figure 3



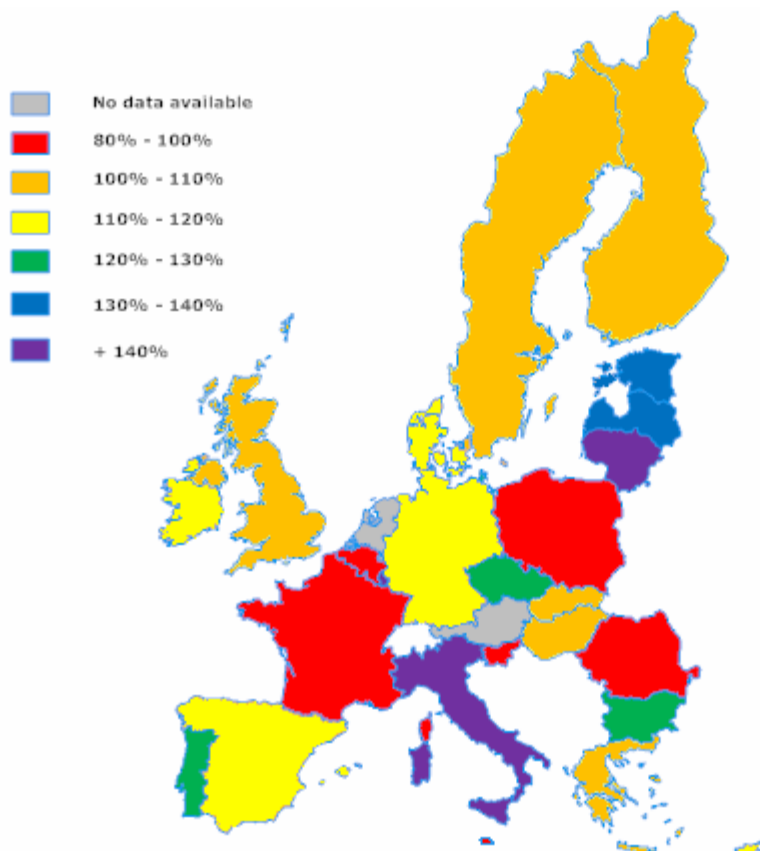
Where available, data include 2G and 3G mobile network operators' subscribers as well as mobile service providers' subscribers. Data are not comparable with previous reports (updated figures for previous years have been provided by some NRAs).

The following map shows the mobile penetration rate in the EU countries and the next chart shows the absolute number of mobile subscribers in each Member States (columns) and the penetration rate (dots), measured as the number of subscribers per 100 inhabitants. Where available figures include 2G and 3G

subscribers for both mobile network operators and mobile service providers. Penetration rate is above 100% in 21 Member States; Italy (148%), Lithuania (144%) and Latvia (140%) have the highest values (apart from Luxembourg where the value (152%) is significantly lower if trans-national commuters are added to the national population).

Figure 4

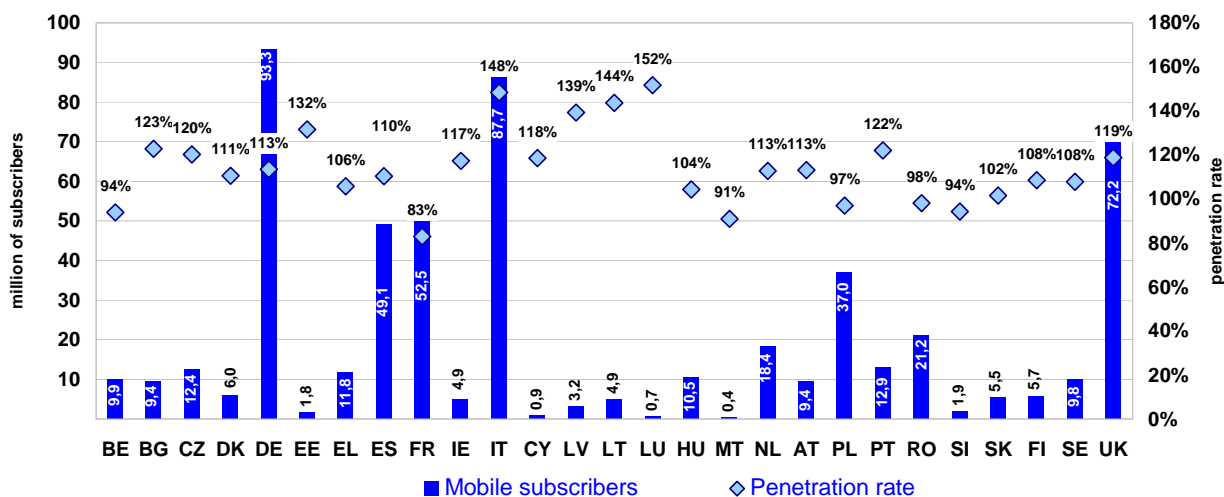
## Mobile penetration, October 2007



Germany: Estimation. Subscribers of service provider are included in data of network operators  
 Spain: UMTS subscribers and GSM1800-DCS 1800 subscribers: data as of July 2007  
 Italy: AGCOM evaluation on August 2007  
 Cyprus: Active subscribers refers to end of August 2007 company results  
 Finland: Data for July 2007 used.

Figure 5

Mobile subscribers and penetration rate, October 2007



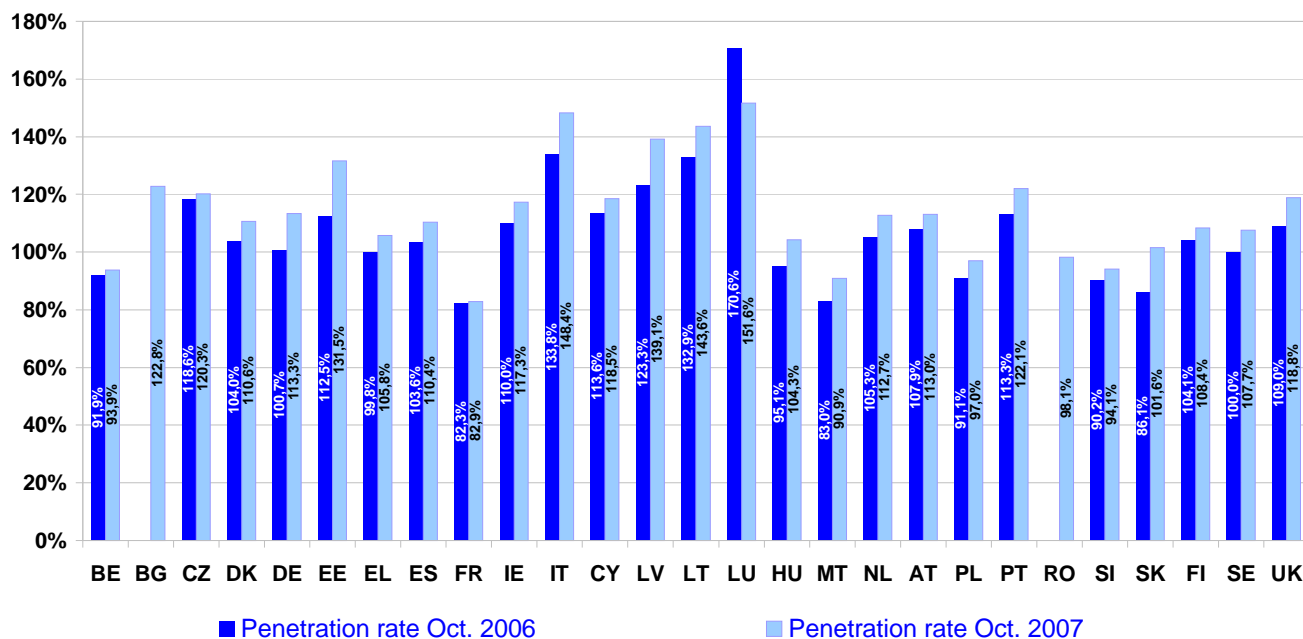
Germany: Estimation. Subscribers of service provider are included in data of network operators  
 Spain: UMTS subscribers and GSM1800-DCS 1800 subscribers: data as of July 2007  
 Italy: AGCOM evaluation on August 2007  
 Cyprus: Active subscribers refers to end of August 2007 company results  
 Finland: Data for July 2007 used.

The following chart displays for each Member State the growth of the mobile penetration rate between October 2006 and October 2007, unless otherwise

indicated. Penetration rate has grown significantly in Slovakia (+15 percentage points (p.p.)), Germany (+13 percentage points (p.p.)), and Estonia (around +10 p.p.).

Figure 6

## Mobile penetration rate (and growth) 2006-2007



Germany: Estimation. Subscribers of service provider are included in data of network operators

Spain: UMTS subscribers and GSM1800-DCS 1800 subscribers: data as of 1.7.2007

Italy: AGCOM evaluation on August 2007

Cyprus: Active subscribers refers to end of August 2007 company results

Luxembourg: For 2006 a different methodology was applied compared to 2007

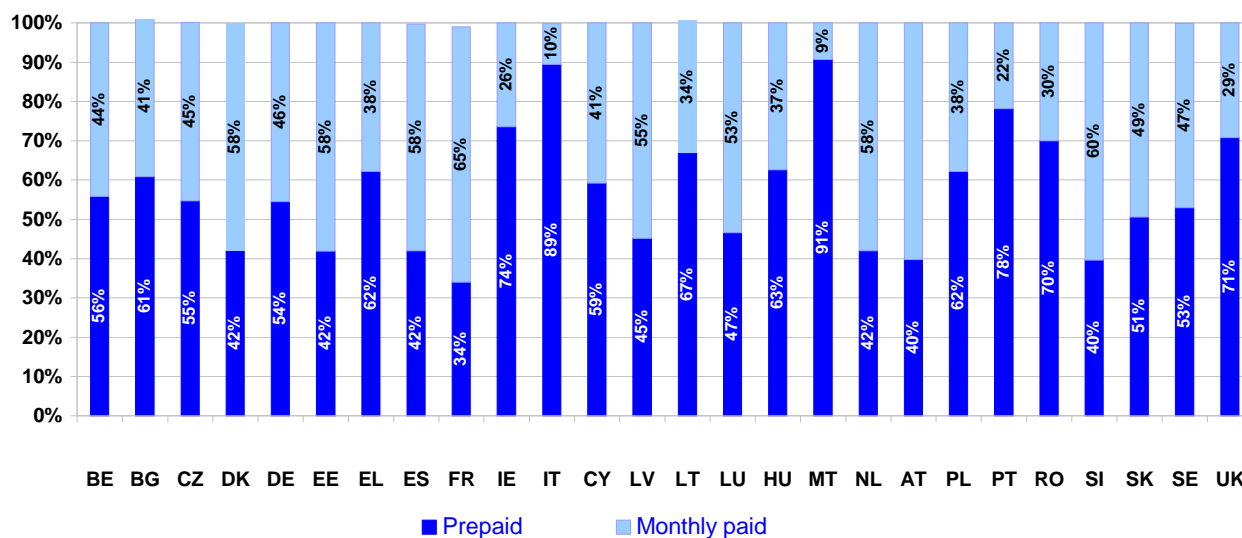
Finland: Data for July 2007 used.

The following chart shows, for each Member State split between post-paid and pre-paid subscribers. At EU level, more than 60% of subscribers use a pre-paid system. In five countries pre-paid subscribers are more

than 70% and in Italy and Malta they are around 90%.

Figure 7

Mobile subscribers: prepaid and monthly paid (October 2007)  
EU average: prepaid: 60,9% - monthly paid: 39,9%



Germany: Estimation. Subscribers of service provider are included in data of network operators  
 Spain: UMTS subscribers and GSM1800-DCS 1800 subscribers: data as of 1.7.2007  
 Italy: AGCOM evaluation on August 2007  
 Cyprus: Active subscribers refers to end of August 2007 company results  
 Finland: Data for July 2007 used.

**1.2. PLAYERS IN THE MOBILE MARKET**

This section shows the number of mobile licenses granted in each Member State for the provision of mobile services (2G/3G mobile network operators and mobile service providers). License for analogue mobile service are not phased out in Poland (phasing out: 17-12-2016).

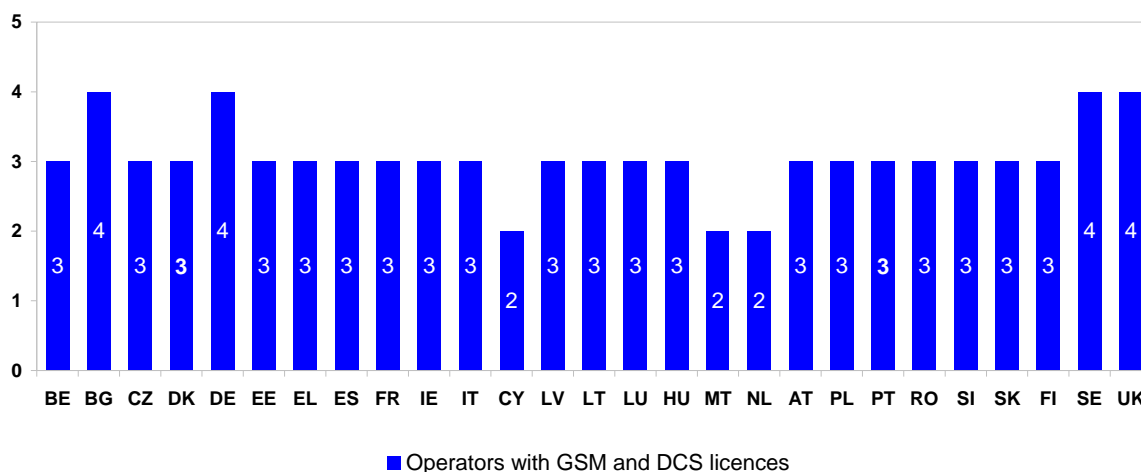
Data have been provided by the national regulatory authorities and refer to the situation in July 2007.

The following chart shows the number of mobile network operators licensed to provide digital mobile

services (second-generation). The number of operators indicates the real magnitude of the choice of operators for customers of digital mobile services, since very often operators have licences for both GSM 900 and DCS 1800. Mobile network operators have been identified as having only GSM 900 or only DCS 1800 frequencies, or both (in which case they have usually been granted a GSM 900 licence which has subsequently been extended to the DCS 1800 band).

**Figure 8**

**2.G Mobile Network Operators, July 2007**  
Total EU: 82

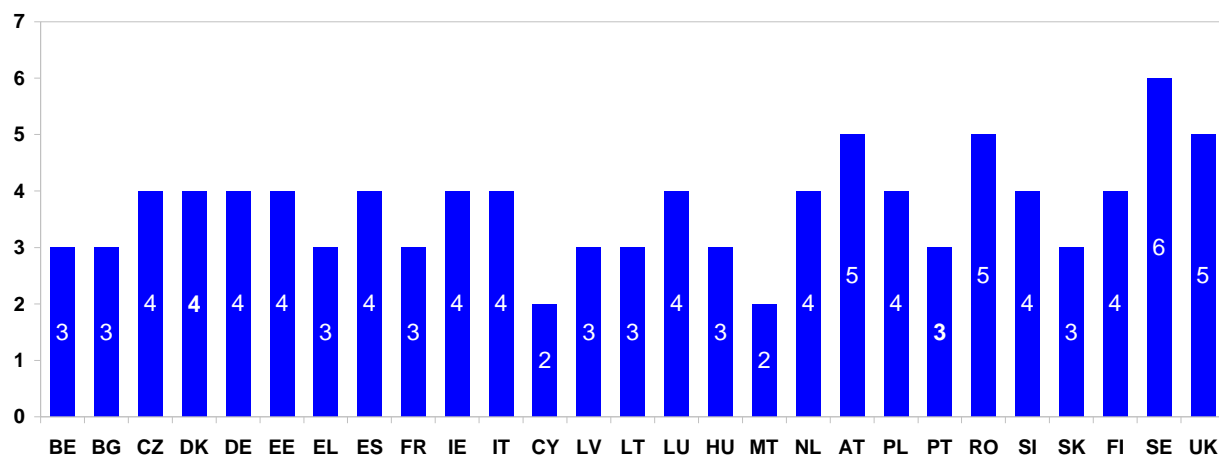


France: Mobile national operators for mainland France only. Overseas departments are excluded.



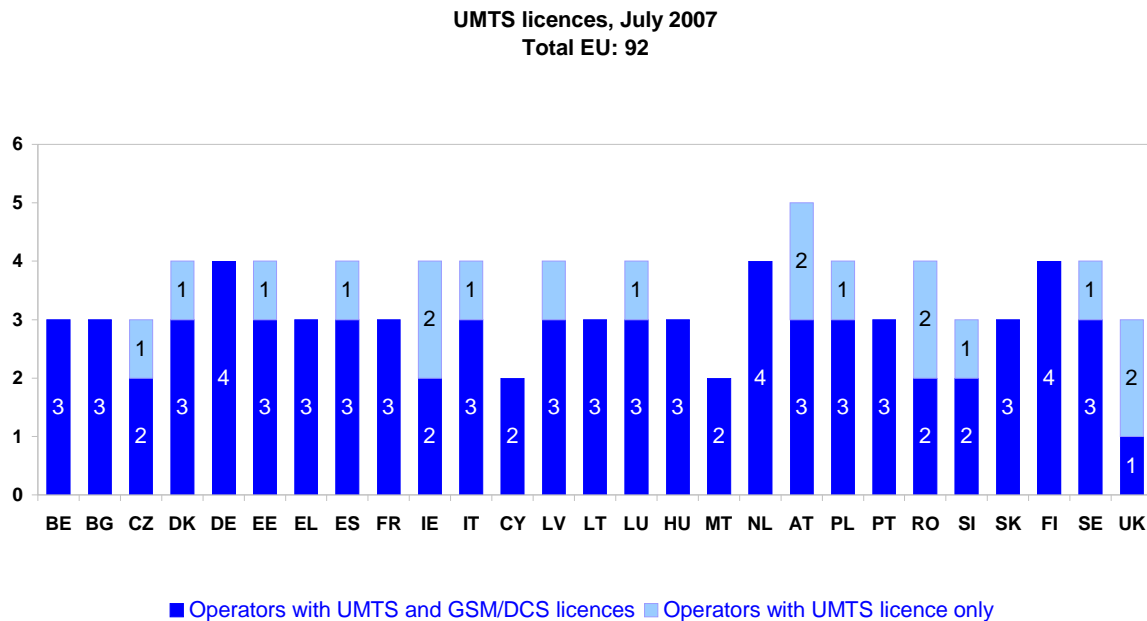
Figure 9

Mobile Network Operators, July 2007  
Total EU: 100



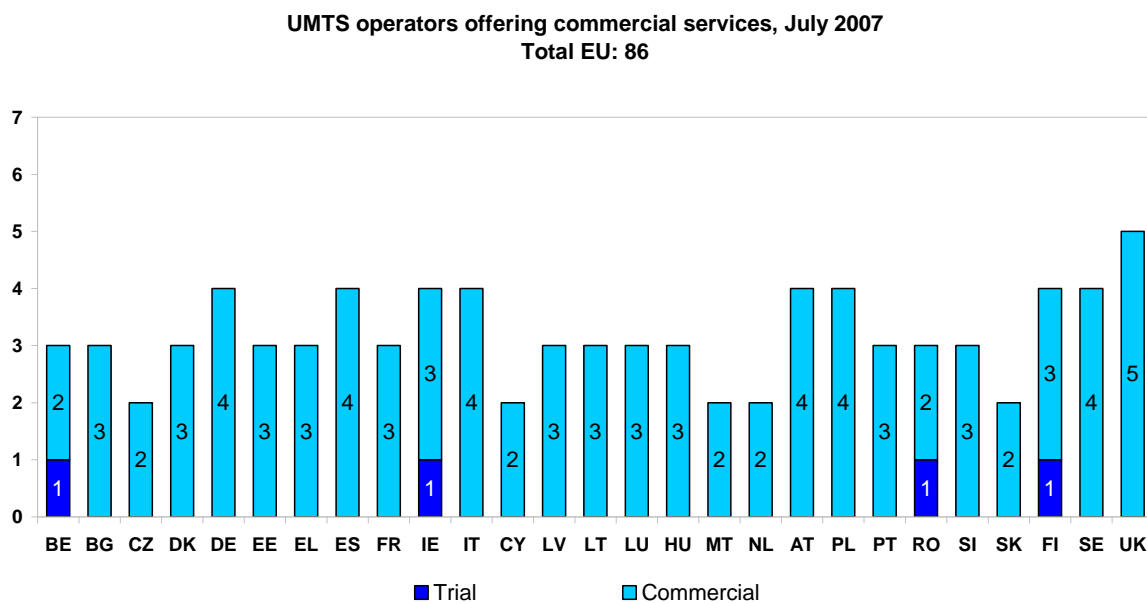
The following two figures indicate the number of UMTS licenses granted in each Member State and the status of the launch of 3G services: trial (tests with a closed group of selected users) or commercial (fully commercial services open to any users at standard tariffs).

Figure 10



Denmark: 3 operators commercially active. One operator is not active  
 Estonia: 4th licensed 3G operator. One operator not active  
 France: The coverage of one specific 3G operator on the market is 20%. 3G service includes data cards.  
 Cyprus: One operator has the obligation to build a 3G network until 2013  
 Poland: Service definition includes data cards  
 Netherlands: 2 3G operators commercially active.  
 Austria: One mobile operator has a license but is not active, frequencies traded to another operator.  
 Romania: There are 3 licensed 3G operators on UMTS and a 4<sup>th</sup> licensed 3G operator on CDMA 2000

Figure 11



Denmark: 3 operators commercially active. One operator is not active

## Mobile Market Share

Estonia: 4th licensed 3G operator. One operator not active

France: The coverage of one specific 3G operator on the market is 20%. 3G service includes data cards.

Cyprus: One operator has the obligation to build a 3G network until 2013

Poland: Service definition includes data cards

Netherlands: 2 3G operators commercially active.

Austria: One mobile operator has a license but is not active, frequencies traded to another operator.

### 1.3. MOBILE OPERATORS' MARKET SHARES

The following charts present the market shares, based on subscribers, of the leading operator, the main competitor and the other competitors in the mobile market. Operators' market shares have been calculated for the overall mobile market (including DCS 1800/GSM 900 and UMTS subscribers).

Data concerning market shares are based on the data supplied by the NRAs except for Czech Republic, Estonia, Greece, Luxembourg, Hungary and Sweden where they are confidential. Data for these countries are estimates from European Mobile Communications and refer to 3Q 2007. Data for

market shares in Greece is taken the incumbent website.

In Cyprus one operator largely dominates the market with more than 85%. In Slovenia the leading operator retains more than 65% of the market. In 15 Member States the leading operators have between 40% and 50%. The lowest market share of the leading operator is in the United Kingdom, with 24%. EU average has been weighted using mobile subscribers for each country. At EU level, the market share of the leading operator and its competitors are the same as last year in average.

Figure 12

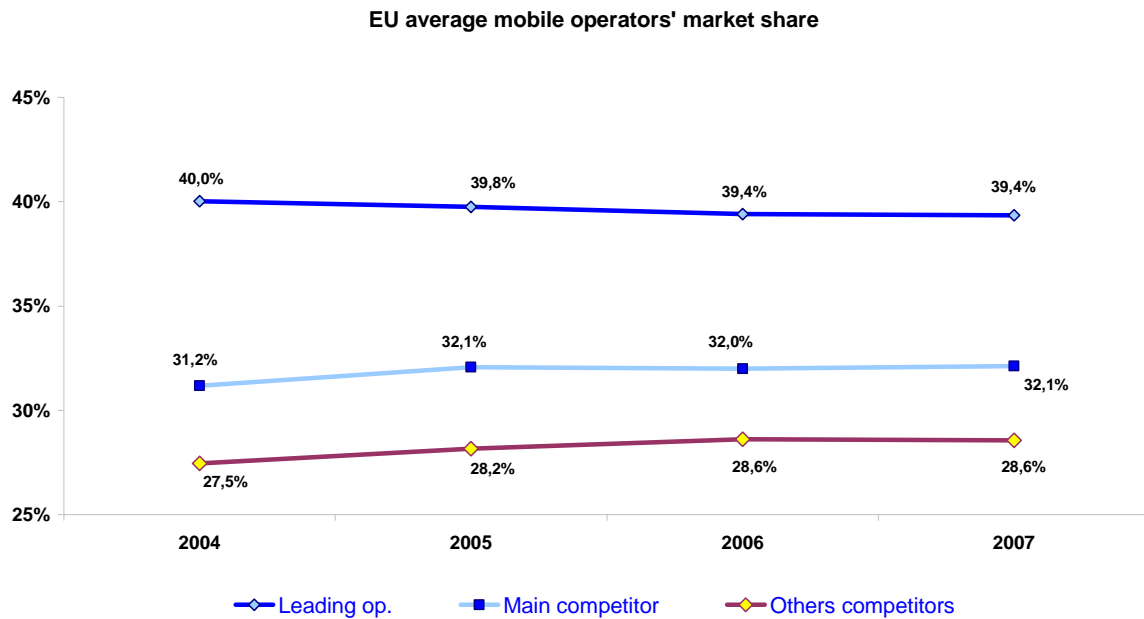
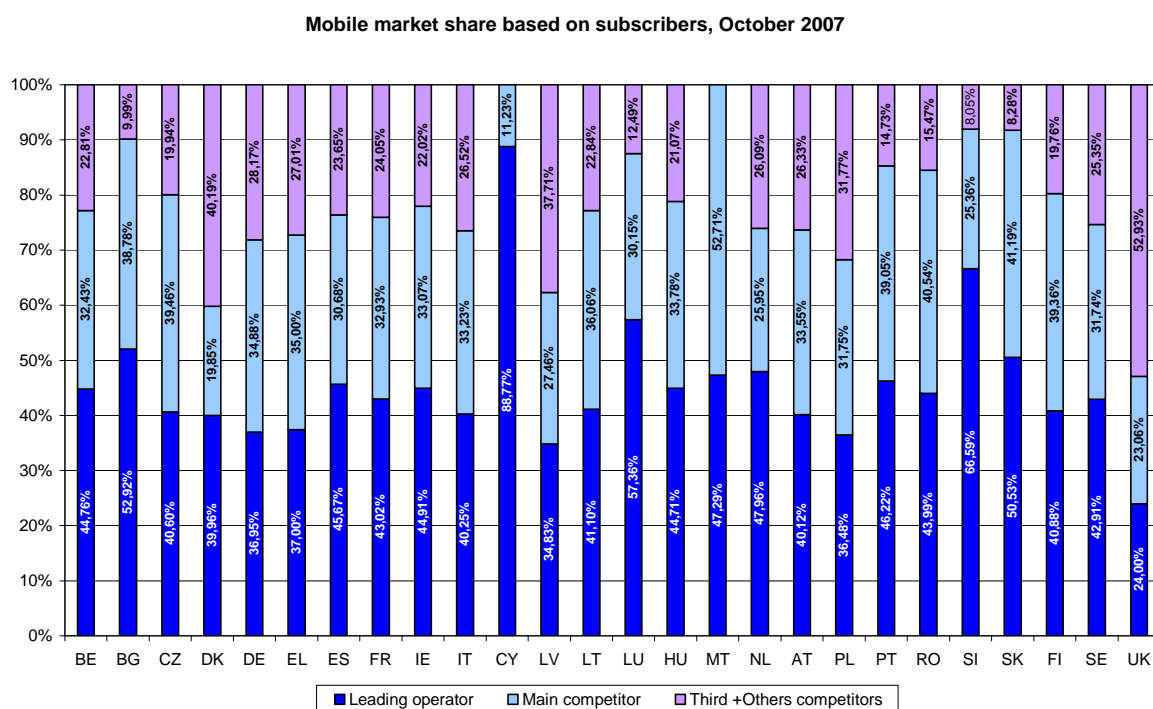


Figure 13



Figure 14



Data for Czech Republic, Estonia, Greece, Luxembourg, Hungary, Austria and Romania are confidential. Data for these countries are estimates from European Mobile Communication 2007 except for Estonia and Greece (Source: Incumbent web-site).

#### 1.4. MOBILE NUMBER PORTABILITY

Mobile number portability enables mobile subscribers to retain their number when they move from one operator to another.

Figures refer to the number of transactions calculated up to 1<sup>st</sup> October each year, unless stated otherwise under each table.

According to the data at our disposal for 23 countries, the mobile ported numbers have increased during the past period (+7.13 million) and as of October 2007 almost 47 million subscribers have ported their number since the introduction of this possibility (data is not available for Poland and United Kingdom)

Only one country (Slovakia) has started to implement mobile number portability this year, while number portability is not yet available in Bulgaria and Romania. Apart from Slovakia the countries that have introduced number portability in 2007, there has been

significant growth in the amount of mobile numbers ported in Greece and Malta.

The percentage of ported numbers in the EU over the total mobile subscribers since the introduction of mobile number portability is now 9.3%.

Spain and Italy continues to lead in terms of the number of subscribers that have ported their numbers. (around 14 million).

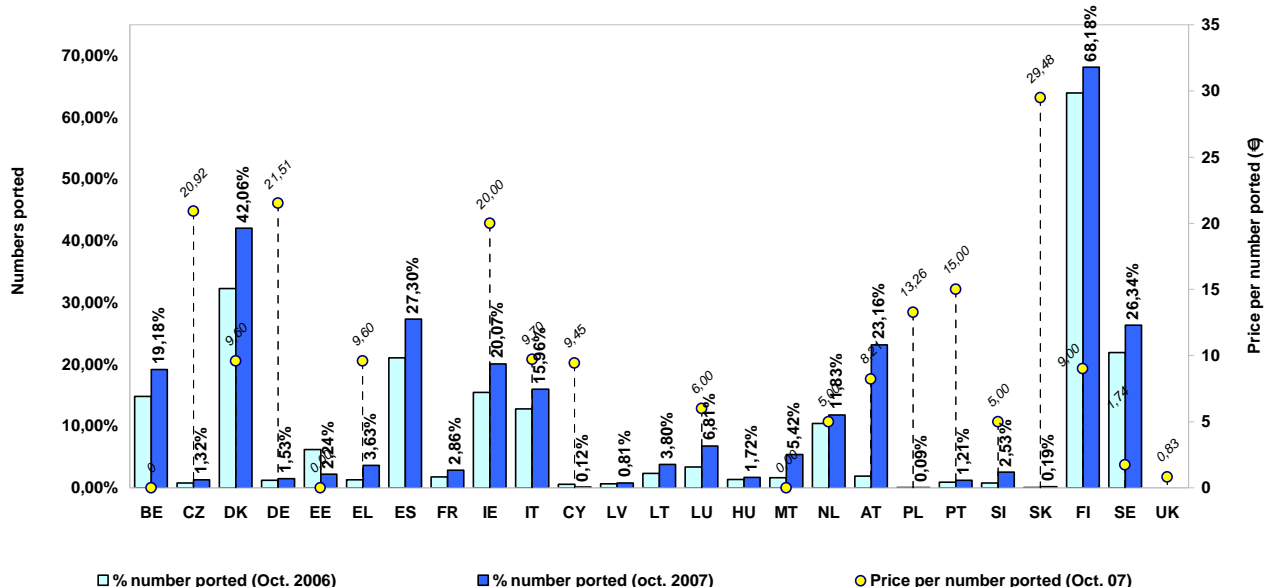
France has also seen considerable growth compared to the previous year but still the number of ported numbers is very low compared to Italy and Spain.

Finland has the highest percentage of ported numbers over the total of mobile subscribers (68%) followed by Denmark (42.06%) and then Spain (28.87%).

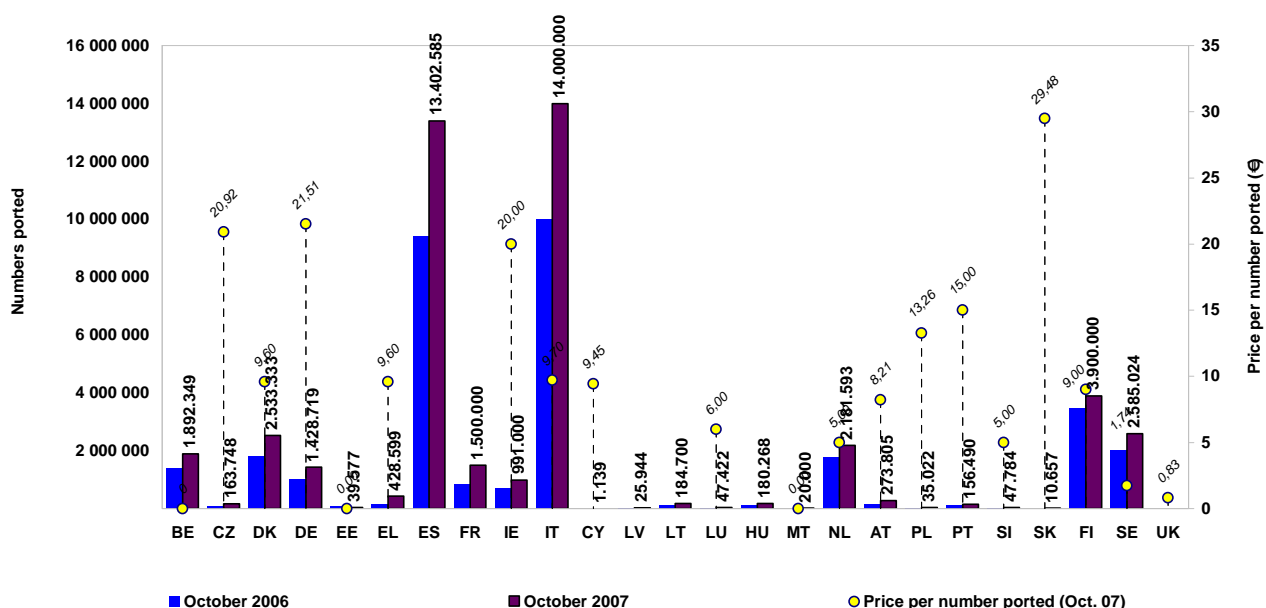
In Estonia, Spain, Lithuania and Malta there is no inter-operator charge for the porting of mobile numbers.

Figure 15

Mobile ported numbers and price of mobile number portability, October 2007



Mobile ported numbers and price of mobile number portability, October 2007

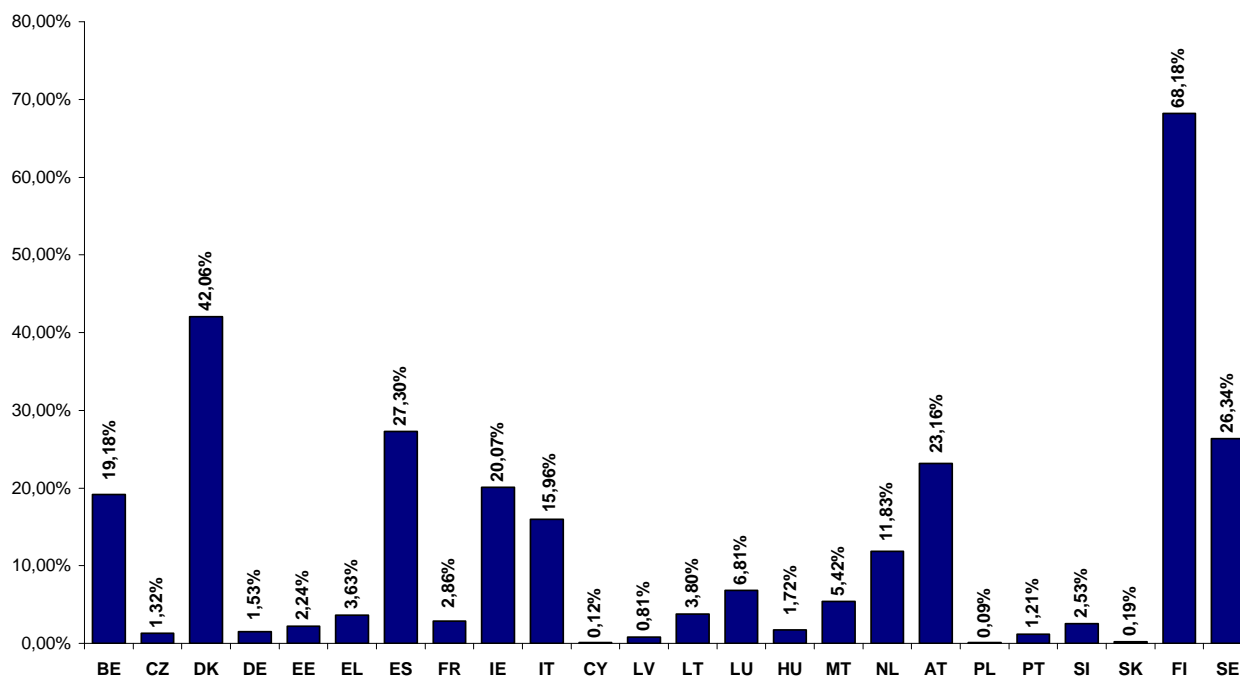


Data on mobile numbers ported is not available for UK and Poland while number portability in Bulgaria and Romania is not yet implemented.

Lithuania: Numbers are ported free of charge.  
 Luxembourg: The data is from August 2006.  
 Malta: Not including port backs.  
 Netherlands: Price is a rough estimate by NRA.  
 Portugal: Value reports to July 2007 excluding VAT.  
 Finland: Average fee, current fee varies from 5 to 12.

Figure 16

% of mobile numbers ported over total mobile subscribers (Oct. 2007)



Data on mobile numbers ported is not available for UK and Poland while number portability in Bulgaria and Romania is not yet implemented.

Lithuania: Numbers are ported free of charge.

Luxembourg: The data as from August 2006

Malta: Not including port backs

### 1.5. MOBILE TARIFFS

1. The analysis of national (as opposed to roaming) mobile services is based on the OECD baskets for digital mobile services. OECD baskets have undergone a revision that resulted in a new set of baskets at the beginning of 2006, as opposed to old 2002 OECD baskets. Mobile baskets have been updated with current traffic weights and volumes. The changes are significant enough to prohibit the use of the new baskets with old data.

The baskets contain an SMS element, they include calls to several mobile networks, and they do not cover international calls. In addition, MMS element is included in the basket, while both MMS and SMS are separated for peak and off-peak times, and on-net and off-net destinations. Also, voicemail is included in the baskets, whereas off-net calls can be directed to several networks. There are 3 different baskets, based on low, medium and high usage levels. All packages analysed in this study are Post-Paid packages. Some of the main properties of the "2006 OECD" baskets are:

- Low usage basket with:  
30 outgoing calls per month + 33 SMS messages

22% of calls are to fixed line phones, 70% to mobile phones, 8% to voicemail,

- Medium usage basket with:  
65 outgoing calls per month + 50 SMS messages  
21% of calls are to fixed line phones, 72% to mobile phones, 7% to voicemail,
- High usage basket with:  
140 outgoing calls per month + 55 SMS messages  
20% of calls are to fixed line phones, 73% to mobile phones, 7% to voicemail.



Each basket also has a unique definition of time of day distribution and call duration, and includes the monthly rental, and any registration charges distributed over 3 years.

The two most prominent operators in each country are covered, based on available subscriber numbers. All relevant packages from each operator are considered, but the final results presented here only show the cheapest package for each basket.

The asterisk (\*) behind the package name means that the package name and its structure have changed between 2006 and 2007. The package chosen at any time is the cheapest package from that provider for the usage profile in question. This may give rise to significant price changes over time.

The balance of fixed and usage in the mobile baskets varies considerably between countries, as the preferred packages in some countries contain a lot of calling time included in the fixed charge.

A full description of the methodology can be found at the end of this report.

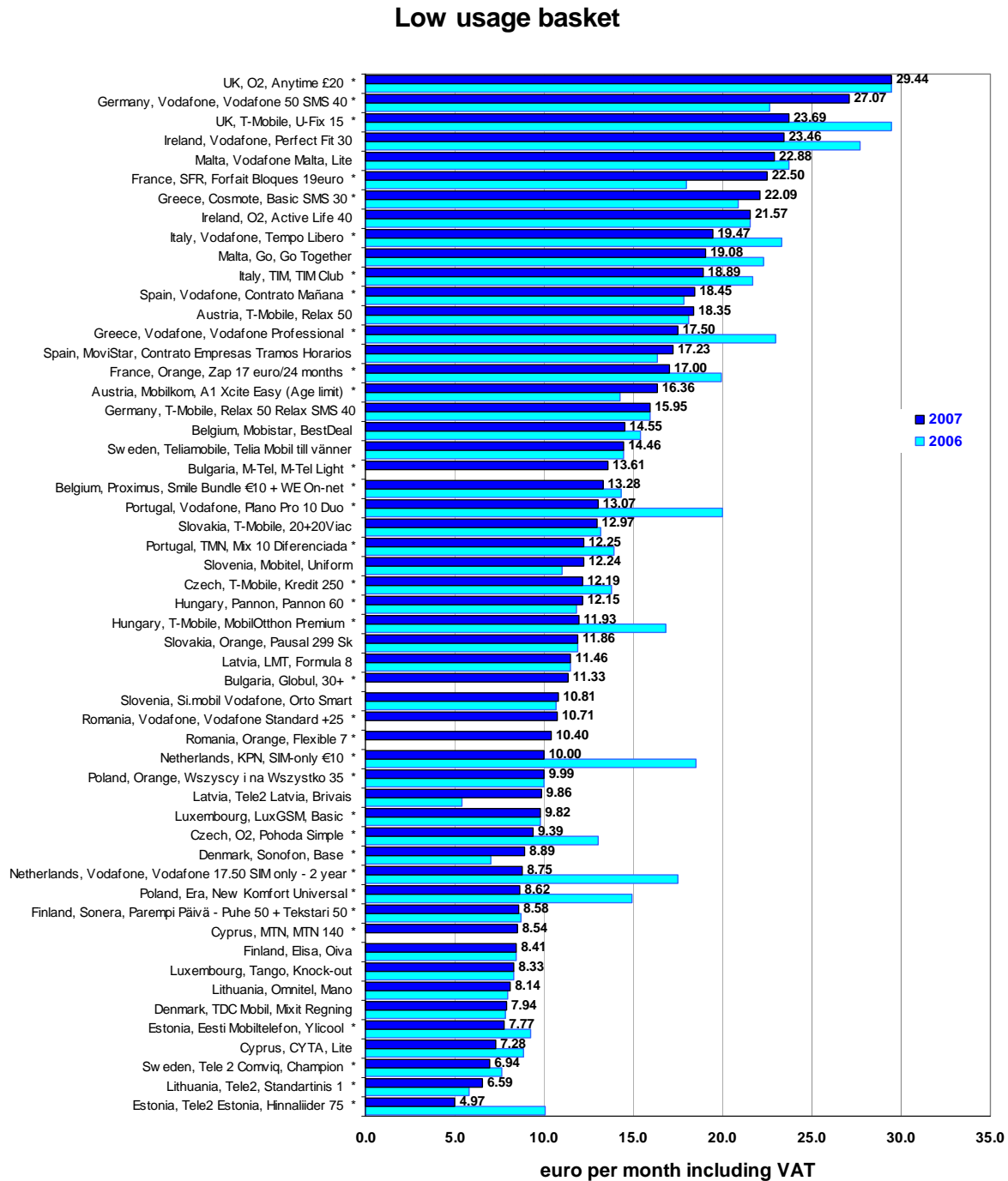
The names of the tariff packages used in the basket analysis are found in the table below.

2. In order to show a price trend, the "2006 OECD" baskets have been used. Mobile services from 2006 till 2007 are used. The graphs will show the average price developments for the EU countries, using a simple average across all member countries per year. The averages cover the cheapest package from the same mobile operators.

From 2007, Bulgaria and Romania are also included.

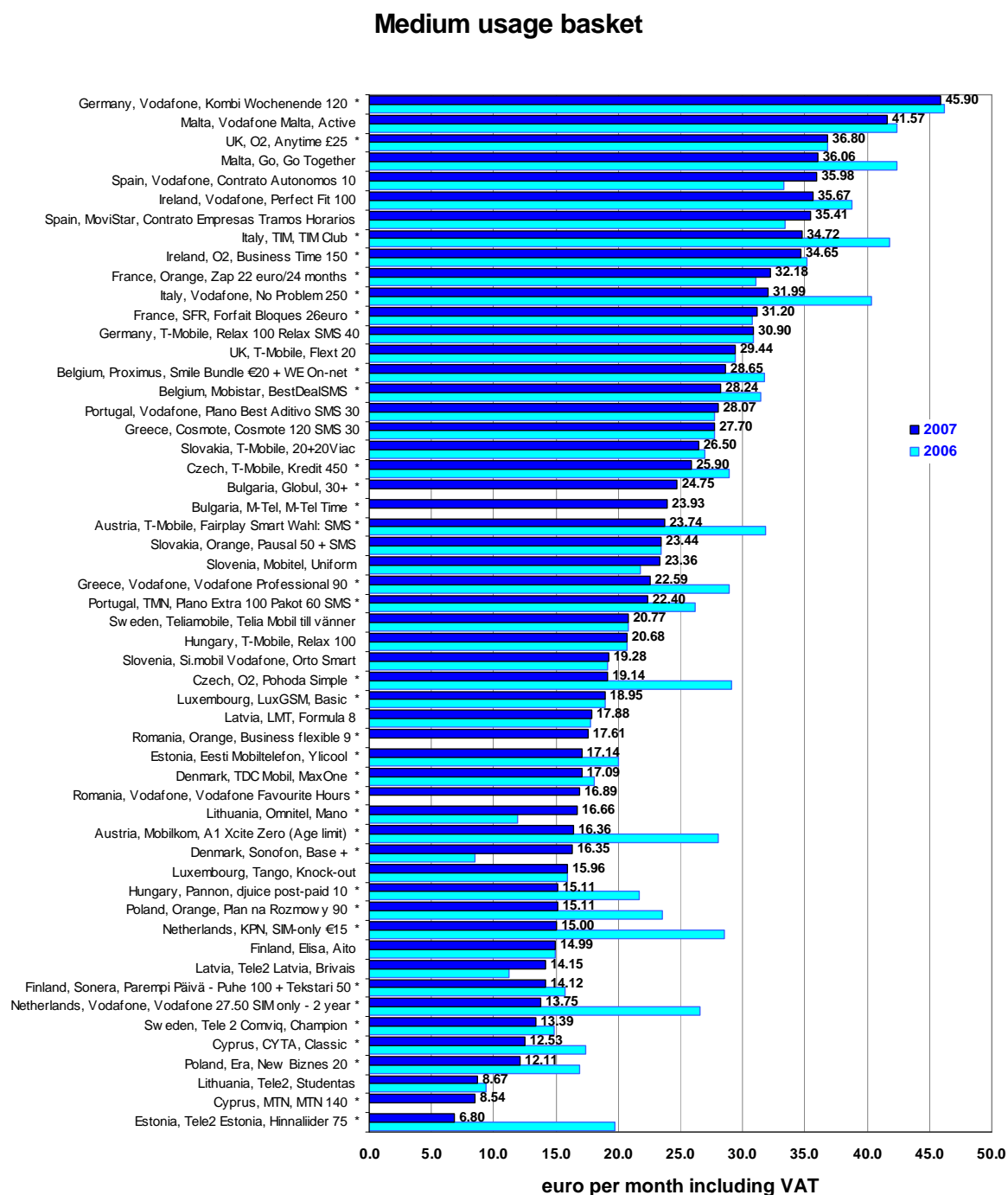
1.5.1. 2006 OECD baskets

Figure 17: OECD Mobile low usage basket



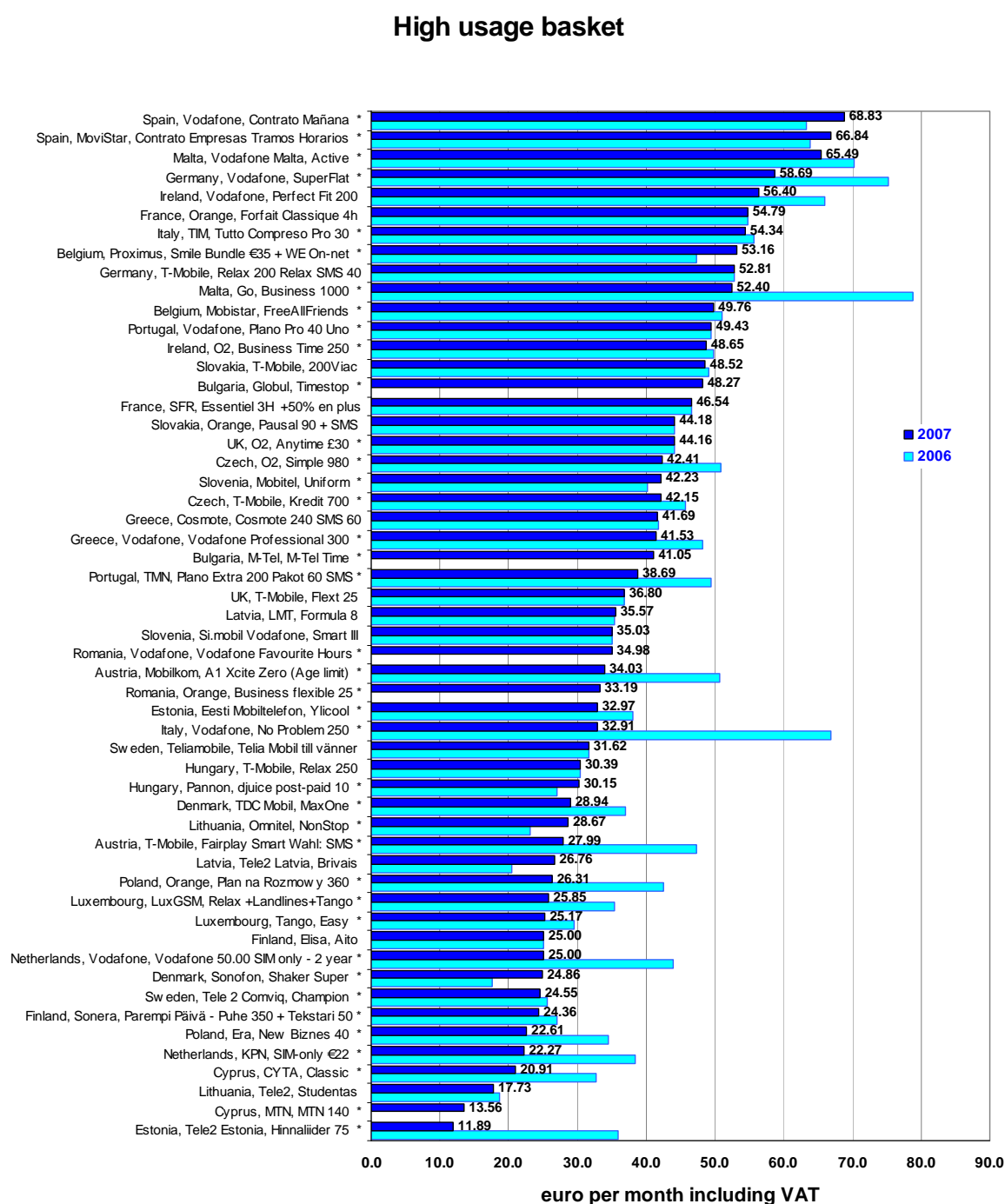
Entries with an asterisk (\*) after the name have changed the package name and structure since last year.

Figure 18: OECD Mobile medium usage basket



Entries with an asterisk (\*) after the name have changed the package name and structure since last year.

Figure 19: OECD Mobile high usage basket



Entries with an asterisk (\*) after the name have changed the package name and structure since last year.

1.5.2. Simple average across all mobile operators

Figure 20: Simple average across all mobile operators covered (low usage basket)

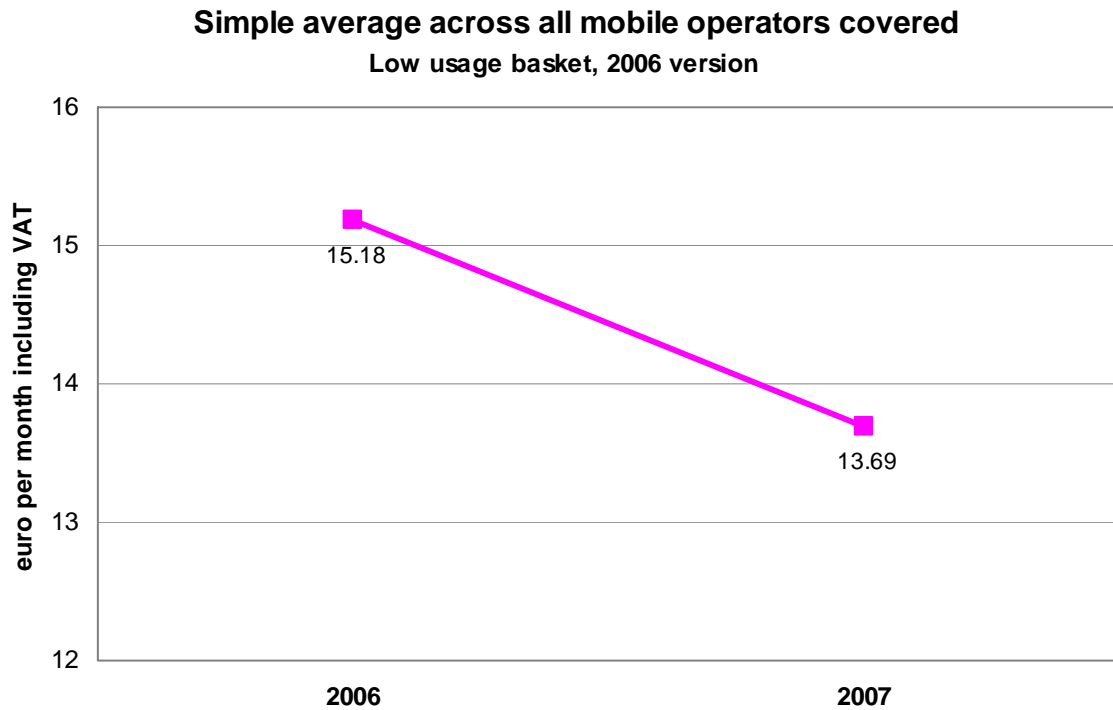


Figure 21: Simple average across all mobile operators covered (medium usage basket)

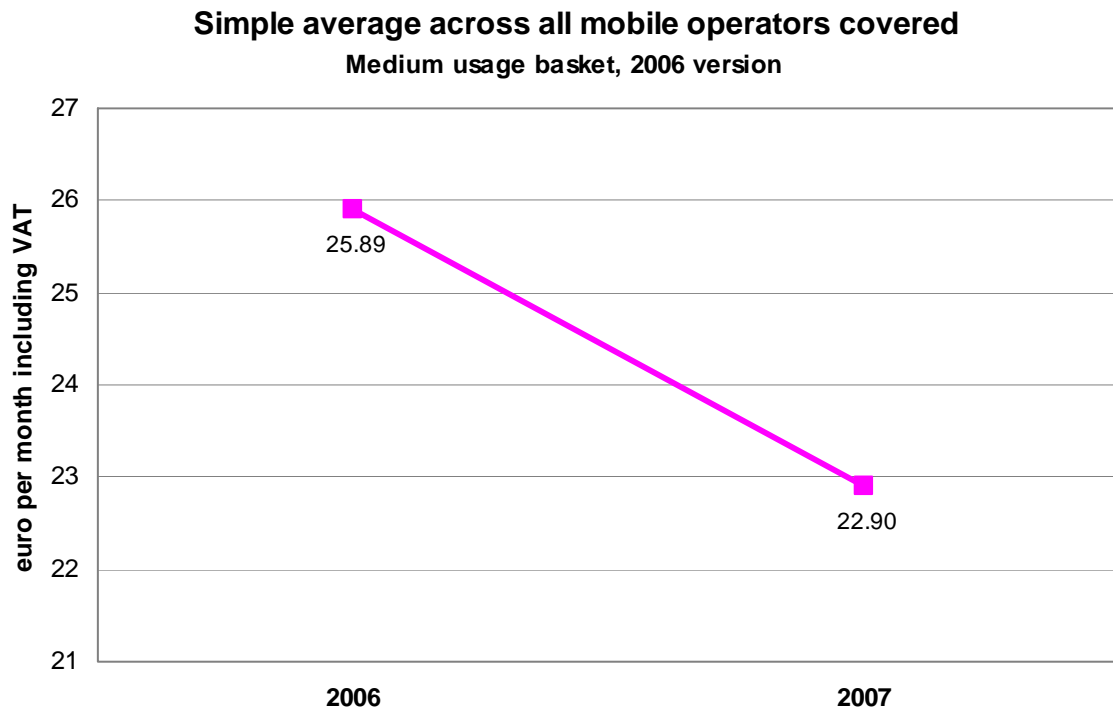
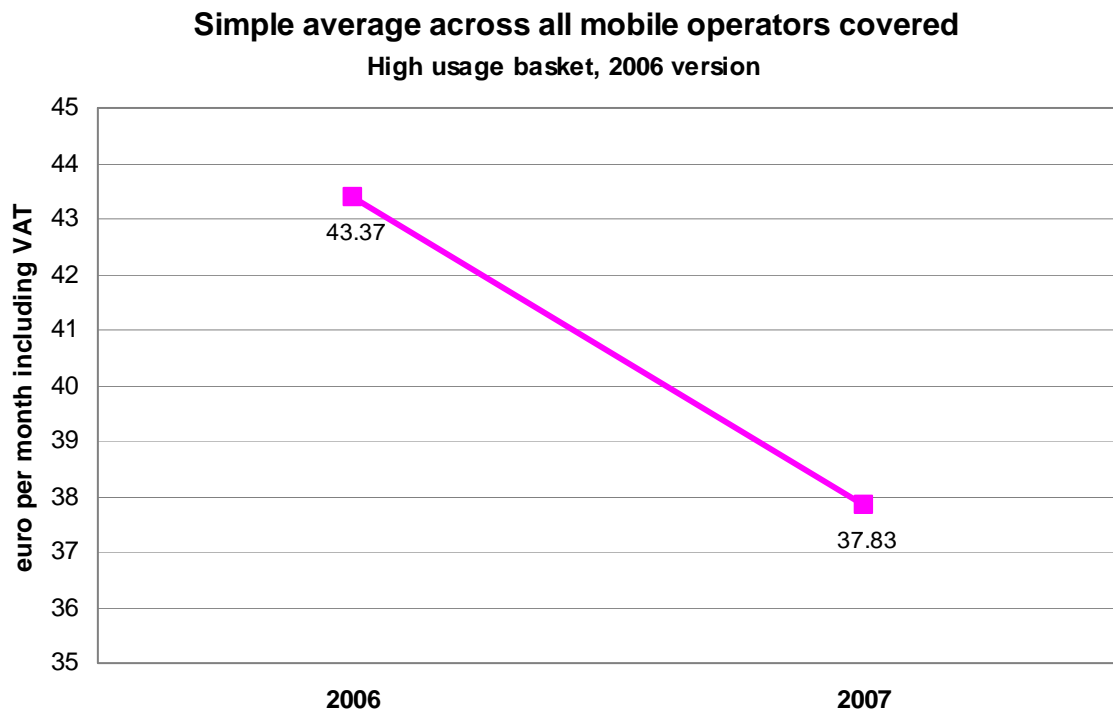


Figure 22: Simple average across all mobile operators covered (high usage basket)



**1.6. CALL TERMINATION ON MOBILE NETWORKS**

This section presents the per-minute interconnection charges for fixed call termination on the networks of mobile operators based on the first three minutes of a call at peak rate. Where available charges for call termination on the networks of 3G operators and service providers (MVNO and resellers) have been included. Charges are for calls originated in the same countries

**1.6.1. EU and national average**

The following chart shows the trend at EU level in the (weighted) average fixed-to-mobile termination charges for all mobile operators in the EU since October 2005. The EU trend should be considered as indicative, since Bulgaria and Romania have been included only in 2007.

The national averages for all mobile operators in each Member States are weighted average charges based on the number of subscribers and the termination rate of each operator at 1 October 2007.

In the following charts information is shown for 92 mobile operators in the EU (representing almost 100% of the EU mobile market). Where available, information on mobile-to-mobile termination rate has been indicated in the notes.

Data have been collected by the NRAs, and refer to 1 October 2007.

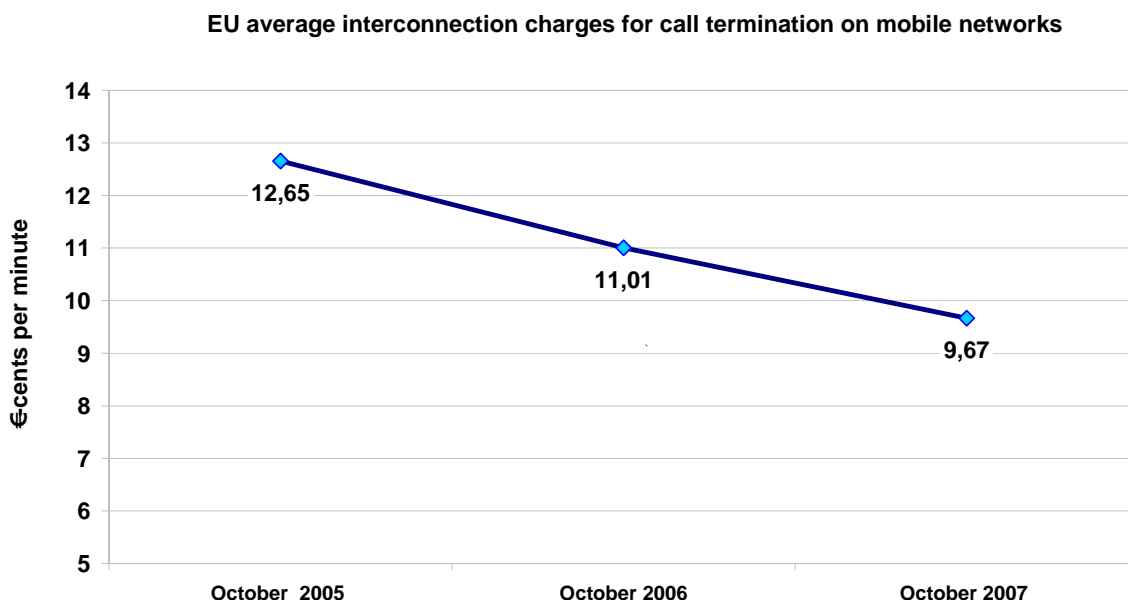
Where available, national averages based on interconnection traffic data have been shown. This gives a better indication of EU national average.

Where available, data for 3G operators and service providers have been taken into account. The 2007 exchange rates have been applied to the non euro-zone countries for previous years.

Despite the continuing decline, termination charges remain on average more than 9 times higher than the fixed interconnection charges (double transit).

The trend shows that termination charges have continued to decrease and at October 2007 the EU average termination charge was 12% lower than one year before (-24% respect October 2005). The most significant reductions<sup>1</sup> have occurred in Slovenia (-53%), Belgium (-36%) and Austria (-26%). Reductions around 20% have taken place in France and Germany. However, mobile termination rate remain very high in Bulgaria and Estonia (more than 40% above the EU average) and in Ireland (almost 25% above the EU average).

**Figure 23**



<sup>1</sup> National average calculated on the basis of subscribers

Figure 24

**Interconnection charges for call termination on mobile networks  
(national average on the basis of subscribers)  
EU average Oct. 2007: 9,67 €-cents**

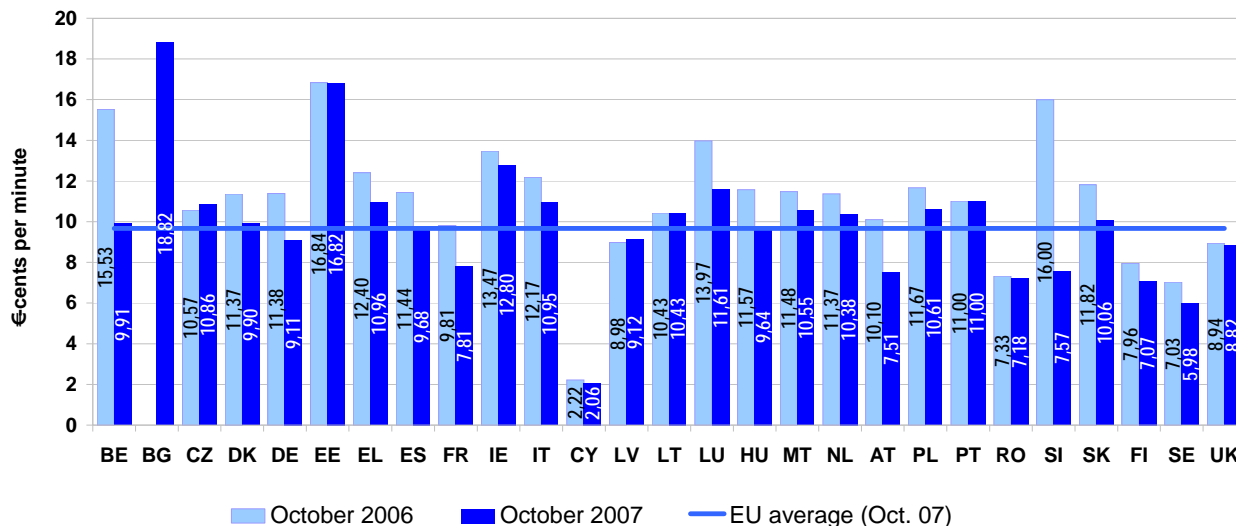
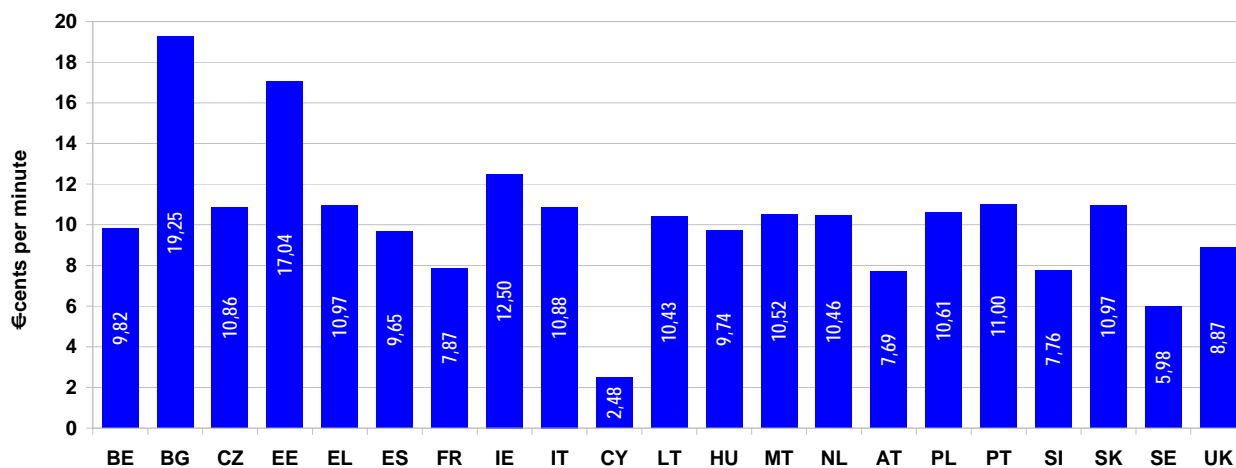


Figure 25

**Interconnection charges for call termination on mobile networks  
(national average on the basis of interconnection traffic)**



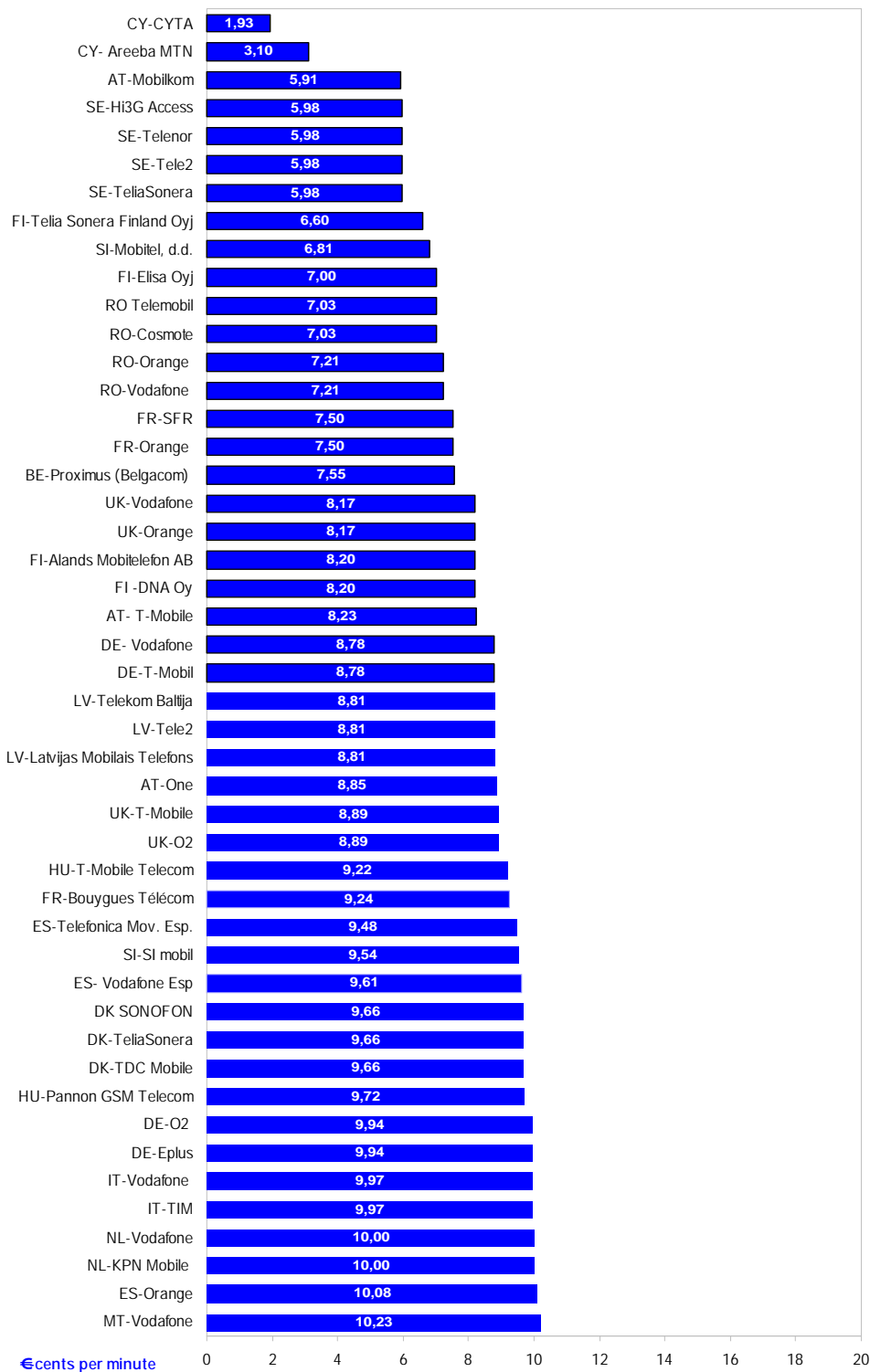


The following charts show the individual fixed-to-mobile interconnection charges for 92 mobile operators in the EU. Cyprus shows the lowest charge (1.93 €cents) whereas the highest charge is found in Estonia with 22.37 €cents.

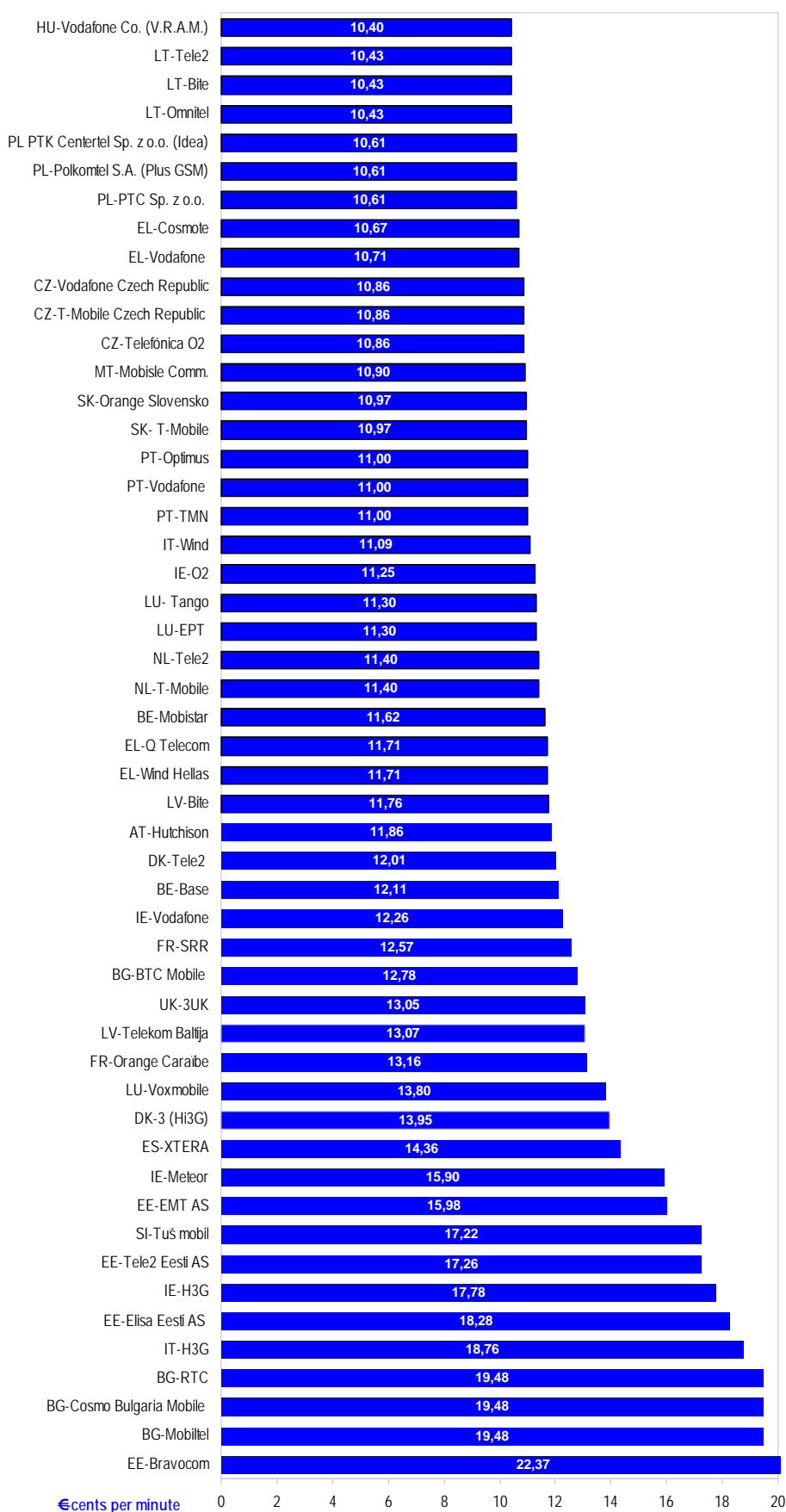
Information for mobile operators in Bulgaria is confidential. Data published in the XII Implementation Report concerning Luxembourg were not correct. Mobile termination rates for Austria are set according to a draft NRA's measure.

**Figure 26:**

I.C. charges for call termination on mobile networks (peak) in €-cents, October 2007



I.C. charges for call termination on mobile networks (peak) in €-cents, October 2007



## 2 FIXED MARKET

This section looks at the number of fixed telecommunications operators (fixed voice telephony and network services) and at the level of competition in the fixed market. It includes data on the number of fixed network operators and public fixed voice telephony operators authorised to provide public voice telephony and to operate a public network at July 2007. The estimated number of players actually active in the fixed market and the incumbents' market shares in the fixed voice telephony market have also been shown.

Data on the number of operators refer to July 2007, while data on the incumbents' market shares in the fixed voice telephony market refer to the end of 2006.

Information has been provided by national regulatory authorities.

### 2.1. PLAYERS IN THE FIXED MARKET

Under the new regulatory framework for electronic communications, operators are only subject to a general authorization regime. Undertakings may be required to submit a notification but may not be required to obtain an explicit decision or any other administrative act. Granting of individual rights of use is required only for scarce resources such as radio spectrum or numbers.

Given the above, the database set up by the national authorities may be very different across the Member States and may include a variety of operators: fixed network operators, service providers, voice over IP services, cable operators as well as wireless local loop, and mobile and satellite operators for the fixed part of their networks and services.

Some Member States are now not able to provide detailed information on the number and types of services provided by the operators that may include other services in addition to public telephony and/or public network services. Therefore, the figures on the number of operators should be considered only as estimates. Furthermore, in some Member States the figure for 2006 is not comparable with the previous implementation reports given the change in the authorization regime.

The figures do not take into account operators acting as resellers or offering services based exclusively on pre-paid cards. The figures include cable TV operators that also provide voice telephony or network services.

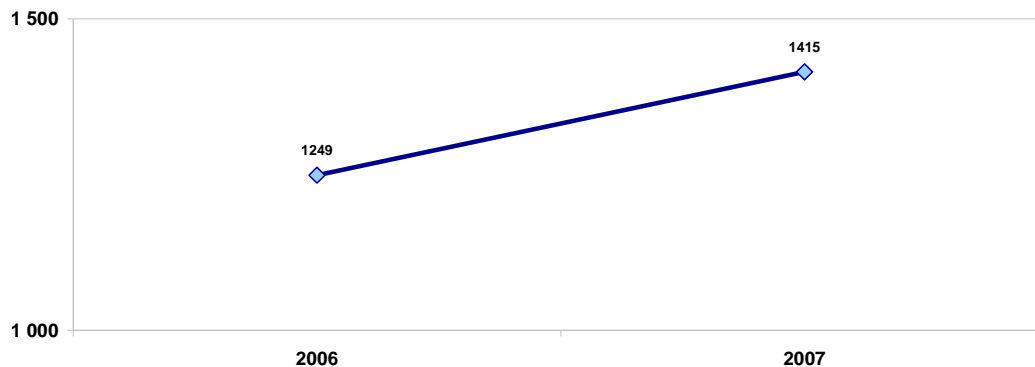
While it is difficult to measure the exact difference since 2006, data shows that there has been an increase in the number of operators authorised to provided fixed services, even if to a lower extent than in previous years.

As of December 2006 the total number of major competing operators (i.e. operators that along with the incumbent operator have a combined market share of around 90% of the global telephony market) in the EU is around 98. In ten Member States there are five or more major competing operators. In six new Member States, competition is still at an early stage with the incumbents' retaining more than 90% of the market and a low level of competition mainly concentrated in the international calls market.

Data on the number of operators were provided by the national regulatory authorities and refer to July 2007. Data on the market shares refer to December 2006.

Figure 27

**Estimated number of fixed operators  
offering publicly available telephony services in EU  
2007**



Only countries that have provided data for the two years are taken into account

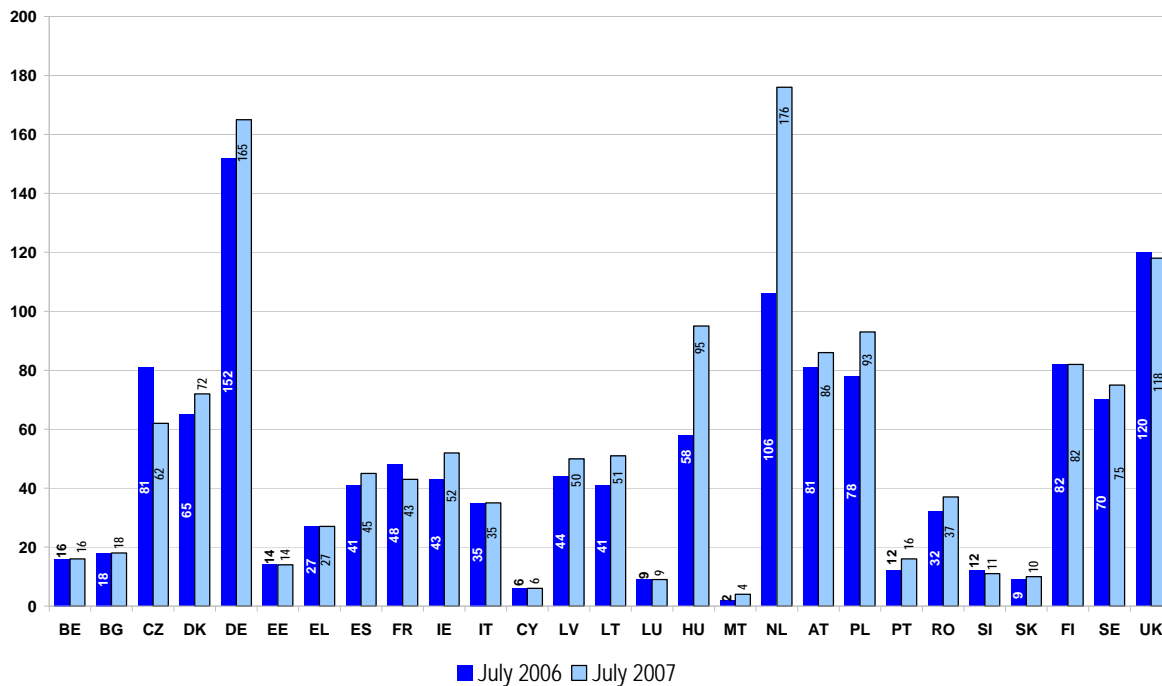
### ***2.1.1. Public fixed voice telephony operators***

The chart below shows the total number of operators that are actually offering publicly available telephony services. 'Publicly available telephone service' is defined as a service available to the public for originating and receiving national and international calls and access to emergency services through a number or numbers in a national or international telephone numbering plan.

The figures indicate the total number of local and/or national operators, including the incumbent, effectively providing commercial voice telephony and network services to residential and/or business customers irrespectively of the scope of their offer (national/international calls). Cable operators providing public voice telephony are also included as well as managed Void operators

Figure 28

Estimated number of operators actually offering public voice telephony  
(July 2007) - Total EU: 1737



Bulgaria: VoIP operators are excluded.

Germany: Simple resale providers are not included.

Greece: The number of operators who have presented revenues from voice telephony services during 2005 and 2006 respectively are only taken into account.

Spain: The number of operators as of July 2006 refers to what was defined as "Telefonía vocal pública (prestador de servicios)" for the 12th Implementation Report.

Netherlands: Data as of 14-9-2007. OPTA changed its systems and policies regarding registration of active operators in electronic communications in 2005/2006.

Austria: Estimations based on numbers of 2006.

Poland: Estimation.

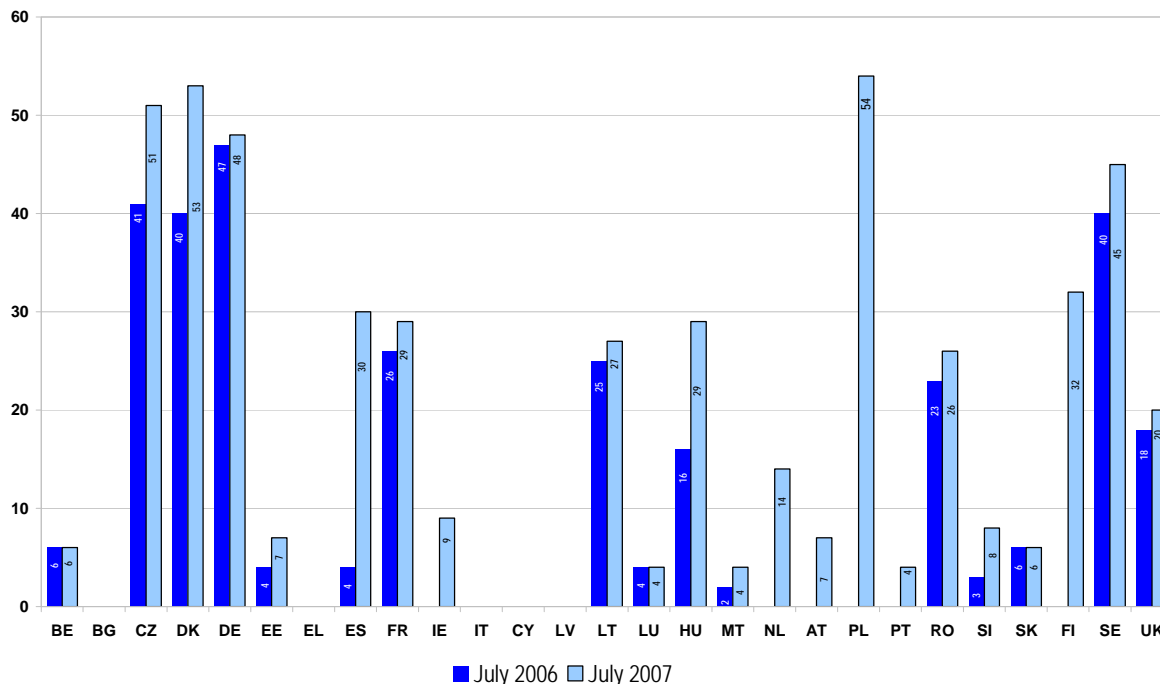
Finland: Estimation: weighted average of each operating area weighted by total number of subscriptions in each area.

United Kingdom: Exact figures not available.

The following chart shows the estimated number of managed VoIP operators offering public voice telephony services. 'Managed VOIP (voice over broadband) operator' is defined as an operator providing a publicly available telephone service (PATS) using voice over internet protocol technology (VoIP), whereby the operator controls the quality of service provided. Unmanaged voice and 'peer to peer' services should not be included. PATS should include access to emergency services.

Figure 29

Estimated number of VoIP operators actually offering public voice telephony (July 2007) - Total EU: 513



Bulgaria: The exact number of VoIP operators is not available due to the free of licensing and any notification regime for ISPs in Bulgaria before the adoption of the new Electronic Communications Law in May 2007. The number of licensed data transfer networks who have stated provision of VoIP of end 2006 is 16.

Denmark: Data derived from MDA.

Cyprus: Data not available.

Hungary: Data at the end of 2006.

Netherlands: VoIP data as of March 2007.

Austria: Estimations based on numbers of 2006.

Poland: Estimation at the end of 2006.

Portugal: Nomadic VOIP only.

Finland: Estimation.

United Kingdom: Exact figures not available.

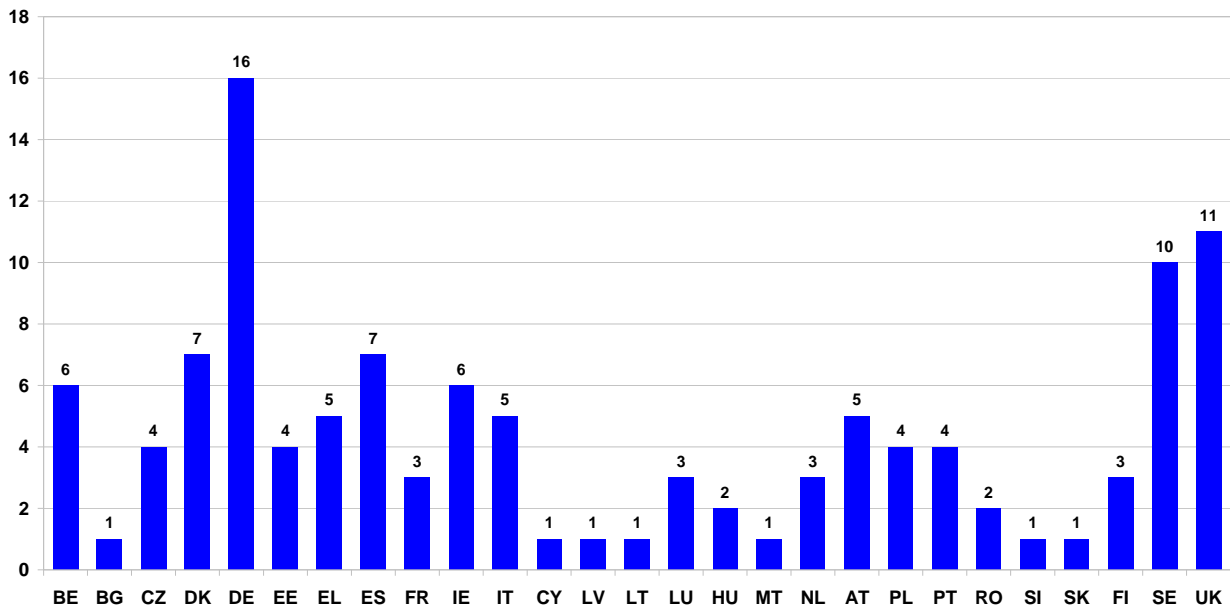
Many new entrants concentrate their business on specific segments of the market or limit their activity to local areas, thus having a limited impact on the national market as a whole. To get an idea of the number of main players that are effectively competing with the incumbent at national level, the following chart shows, for each country, the number of operators that had a combined market share, based on revenues, of 90% on the total voice telephony market (all types of calls<sup>2</sup>). In December 2007 three new countries (Denmark, Greece and Italy) had five or more major

competing operators (including the incumbent) with such a combined market share. This is an improvement from last year figures where only seven countries had such a combined market share. These figures give an idea of the number of major players operating in each national market, although in many cases competition is largely asymmetric, with incumbents continuing to hold a strong position. This situation can be observed in the new Member States, where the fixed incumbent still dominates the fixed voice market.

<sup>2</sup> Local calls to internet, local phone calls, long-distance and international calls as well as calls to mobile

Figure 30

Number of players in the fixed telephony market in terms of retail revenues (including the incumbent, Dec. 2007 )



Operators that along with the incumbent operator have a combined market share of 90% of the voice telephony

## 2.2. INCUMBENTS' MARKET SHARE IN THE FIXED VOICE TELEPHONY MARKET

This section shows the incumbents' market share in the fixed voice telephony markets.

Apart from the overall fixed voice telephony market, submarkets for fixed calls to mobile networks, national fixed calls (including phone local calls, local calls to internet, long-distance calls and fixed calls to mobile networks) and international fixed calls are also shown.

Figures for market share are calculated on retail revenues and outgoing minutes of traffic. Market share based on retail revenues exclusively refers to revenues from call markets and does not include any access revenue.

The EU averages are weighted according to the population of each MS. Furthermore, data from

Bulgaria and Romania have not been taken into account as both countries were not part of the EU in the period covered (2004-2006).

The market shares are based on traffic/revenues from publicly available telephone services and include managed Voice over IP Services (VoIP) and calls made from public payphones. Traffic/revenues from peer-to-peer VoIP, simple reselling and calling cards are excluded. However, the above criteria are not followed by all MSs. For this reason the figures are not strictly comparables between countries.

Figures have been provided by NRAs and refer to 31 December 2006 (data for the United Kingdom are for calendar year). Data for some countries (like Germany, Cyprus and Finland) are estimations by NRAs.

### 2.2.1. EU average incumbents' market share

The following charts show the trend for the EU weighted average of the incumbents' market share in the major segments of the voice telephony market since 2004.

Given that data were not available for all countries and for all types of calls, the EU average should be considered as indicative. In particular, the overall fixed telephony market share in term of revenues in 2004 is an average of countries that represent 95.5%, and

97.7% for 2005 and 2006 of the EU population respectively.

Market share data based on volume of traffic for 2005 and 2006 represent 100% of EU population, while the data for 2004 are based only on a number of countries representing 96.6% of the EU population.

Figure 31

EU incumbents' overall average market share on the fixed voice telephony market (all type of calls)

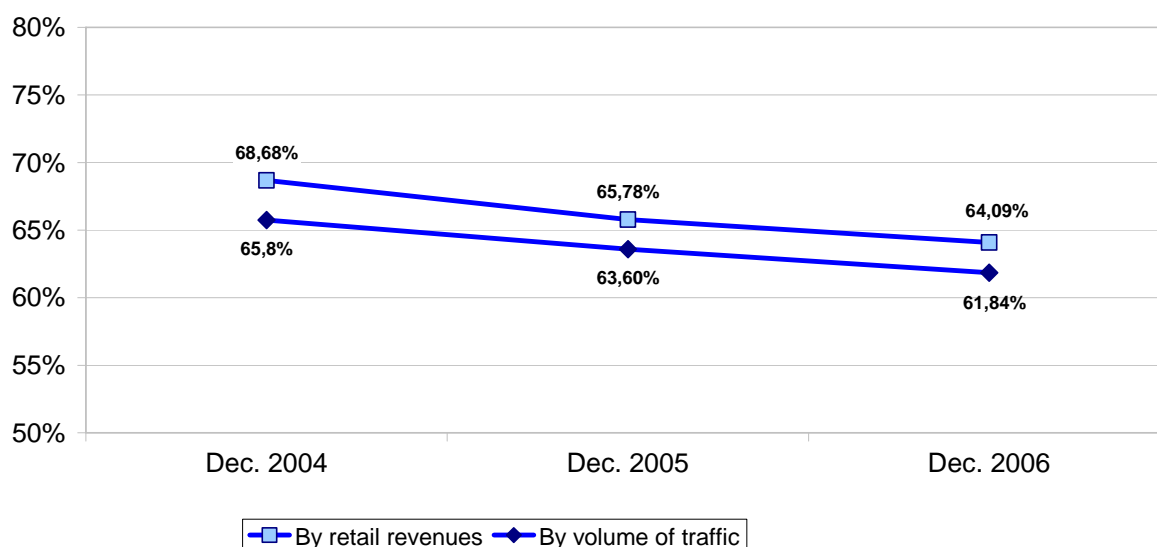
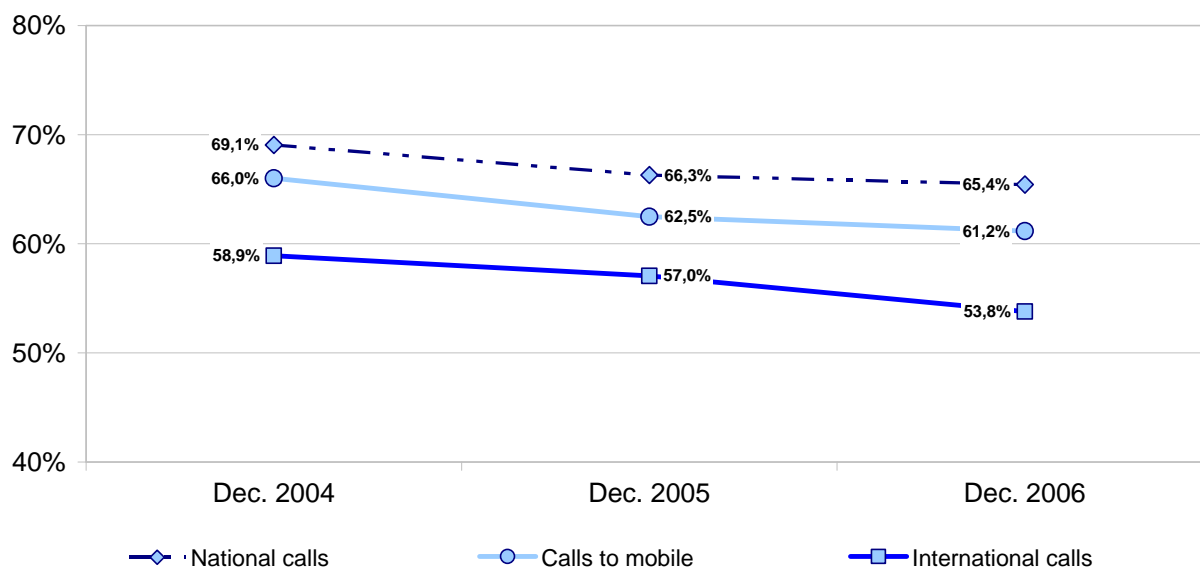


Figure 32



EU incumbents' average market share on the voice telephony market  
(based on revenues)



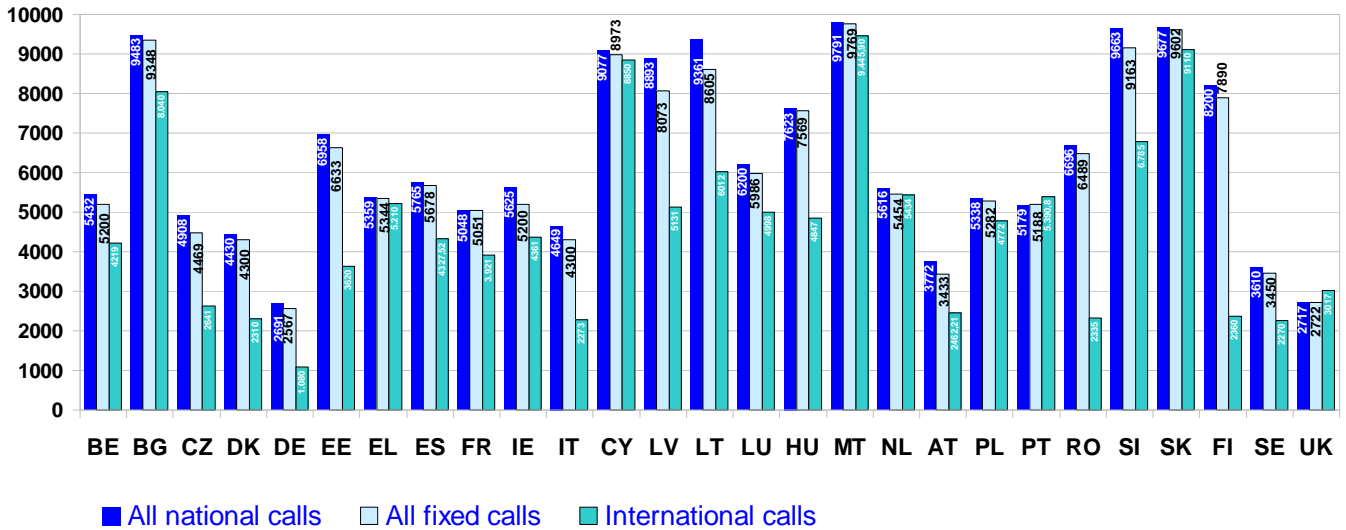
The figure for international calls and calls to mobiles are averages of countries that represent between 97.2% and 97.4% of the EU population for the concerned period. The figure for national calls market is an average of countries that represent 95,5% of the EU population for 2004 and 97.7% for 2005 and 2006. National calls include phone local calls, local calls to internet, long-distance calls and calls to mobile.

The following chart shows the indexes of concentration for the fixed telephony market in the MSs at 31 December 2006 based on the Herfindhal-Hirschman index. This is a market concentration index defined as the sum of the squares of the market share of the competitors in the relevant markets. The index can take the value of 10 000 when the market is entirely controlled by a single firm and it decreases as

concentration reduces. The indexes are calculated on the basis of retail revenues, except for Germany, Estonia, Luxembourg, Netherlands, and Finland where they are calculated on the basis of traffic volume. Comparisons between the other MSs should be considered as indicative, since the reference markets are not completely homogeneous.

Figure 33

**Fixed telephony market Concentration  
(based on Herfindahl-Hirschman Index)  
December 2006**



Data for Germany, Netherlands and Luxembourg using call volumes

Ireland: National calls figure is the sum of the square of operators that account for 93% of voice telephony market. International calls figure is the sum of the square of that account for 91% of voice telephony market. All fixed calls figure is the sum of the square operators that account for 92% of voice telephony market. Figures exclude VoIP.

Netherlands: Based on 90-95% of market volume, data for 2006

Finland: National calls figure is the estimated average in each operating area. International calls figure is based on SMP analysis conducted in 2005. Fixed Calls is the estimated average in each operating area.

United Kingdom: Overstated figure due to use of wholesale data to calculate revenues from operators not providing data.

### 2.2.2. Incumbent's overall market share in each Member State

The following charts shows the incumbents' market share in the overall fixed voice telephony market by retail revenues and by minutes of outgoing traffic. All types of calls are included: local phone calls, local calls

to internet, long-distance calls, international calls and fixed calls to mobile networks. Market share based on retail revenues does not include any access revenue. Figures are not available for some MSs.

Figure 34

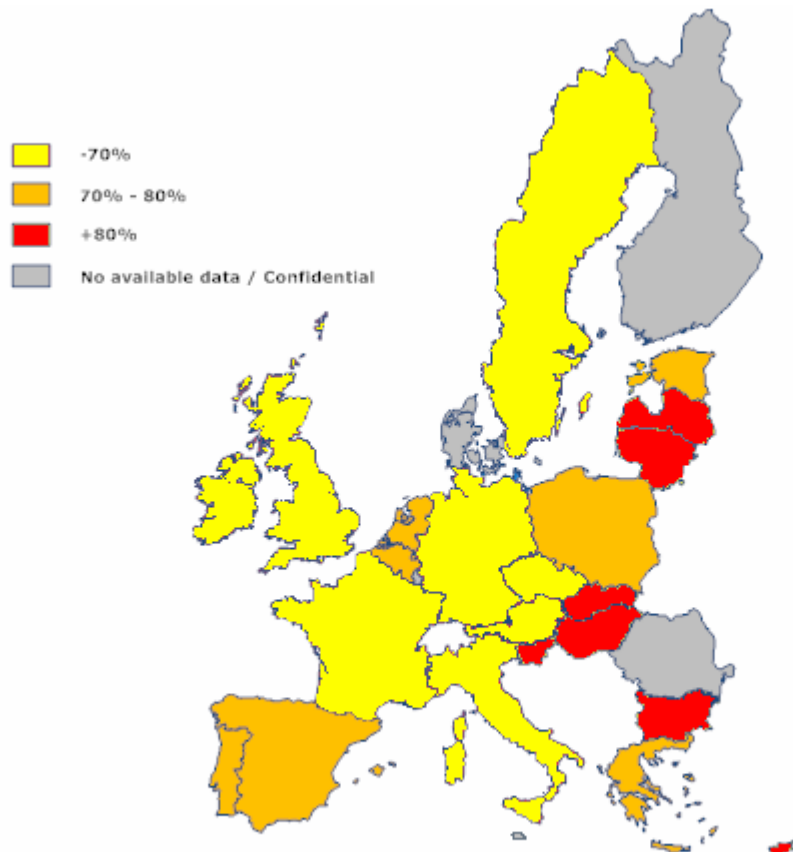
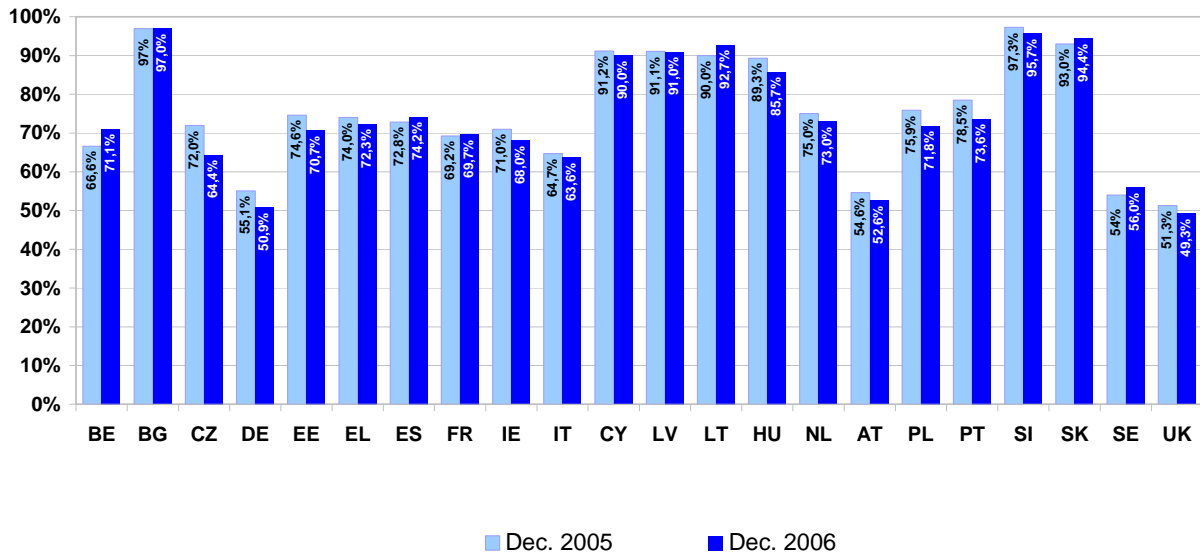
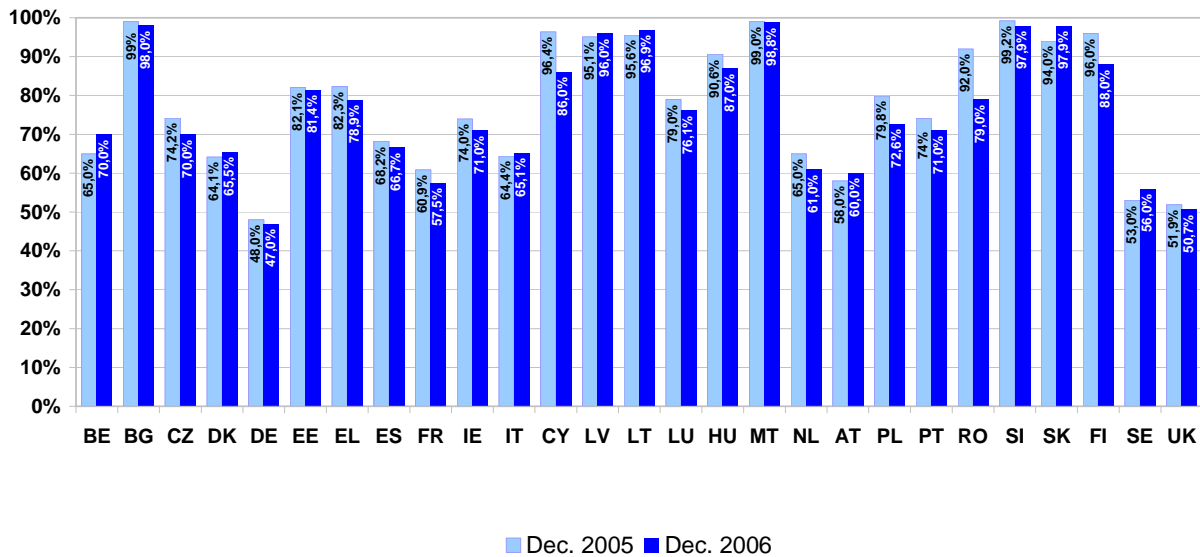


Figure 35

Incumbents' market share in the fixed telephony market (all types of calls)  
(by retail revenue)



Incumbents' market share in the fixed telephony market (all types of calls)  
(by minute of traffic)



2.2.3. Incumbent's market share in the different segments of the market

The following charts show the incumbents' market share in the national calls, international calls and fixed calls to mobile networks by retail revenues and by minutes of outgoing traffic. The national calls market includes local phone calls, local calls to internet, long-distance calls and fixed calls to mobile networks. Figures are not available for some MSs.

Figure 36

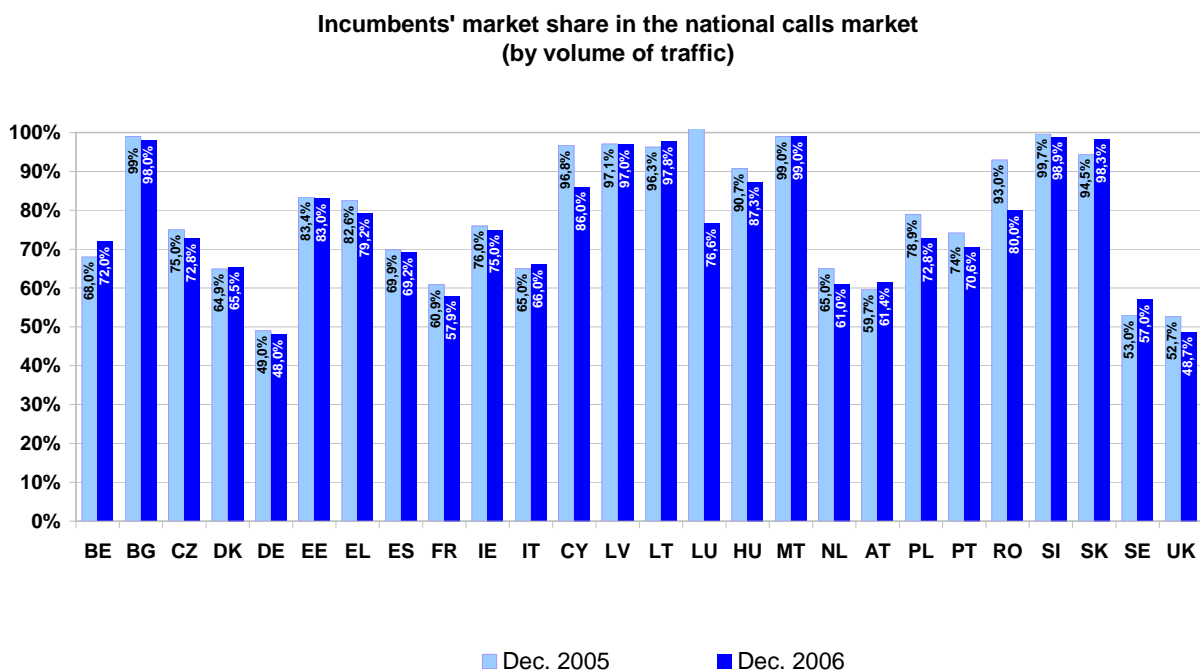
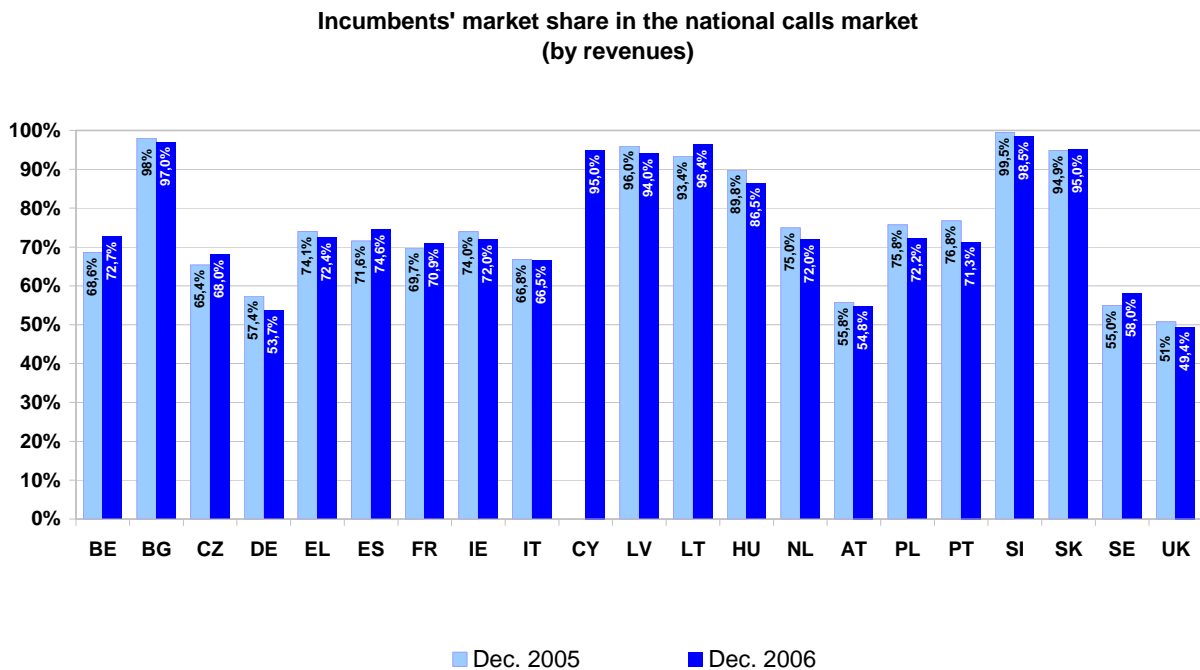
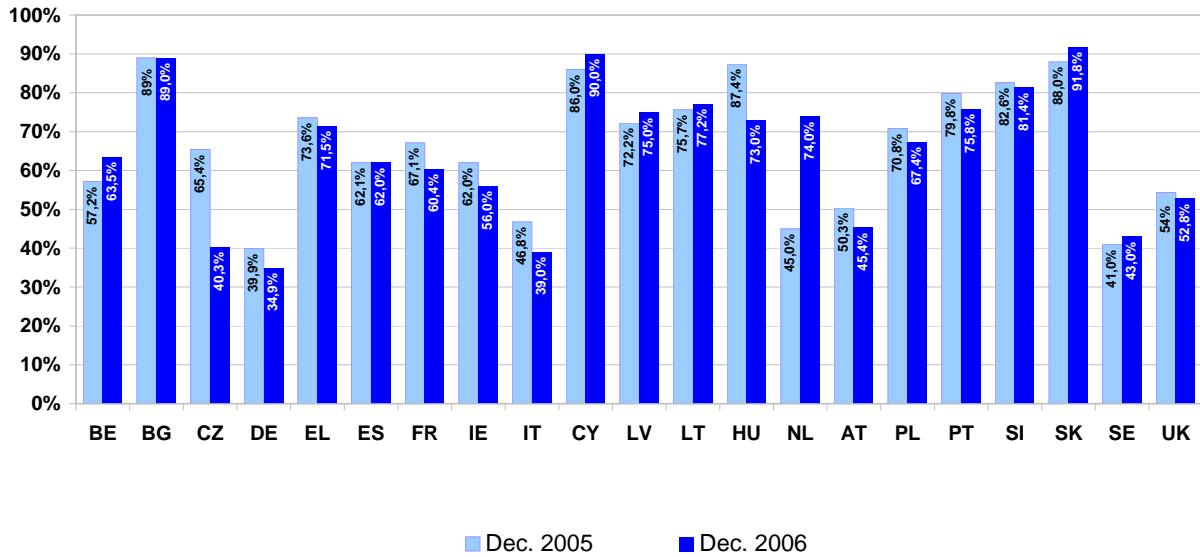


Figure 37

Incumbents' market share in the international calls market (by revenues)



Incumbents' market share in the international calls market (by volume of traffic)

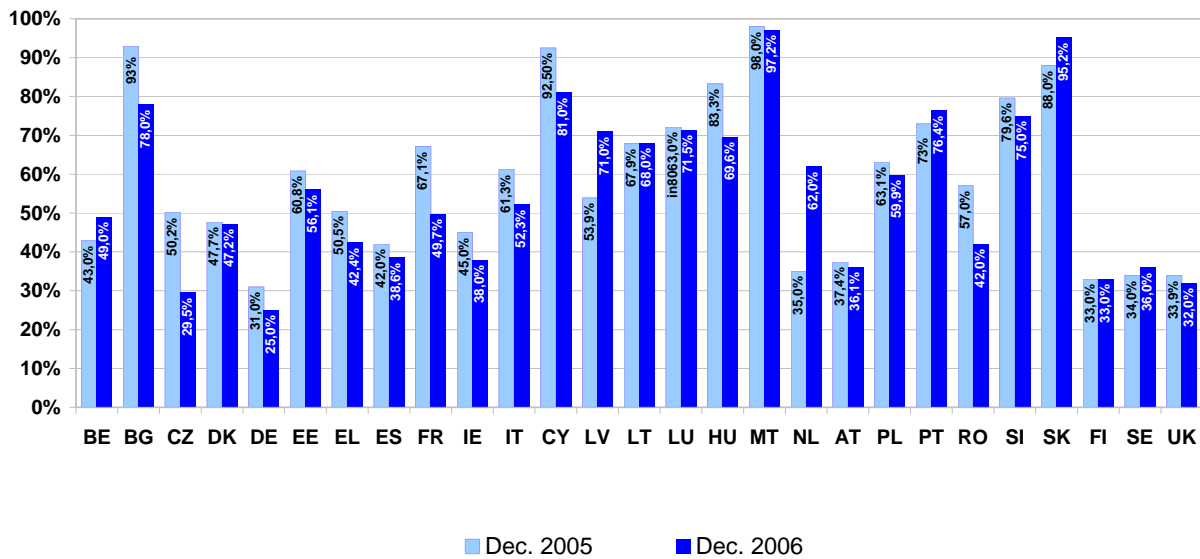
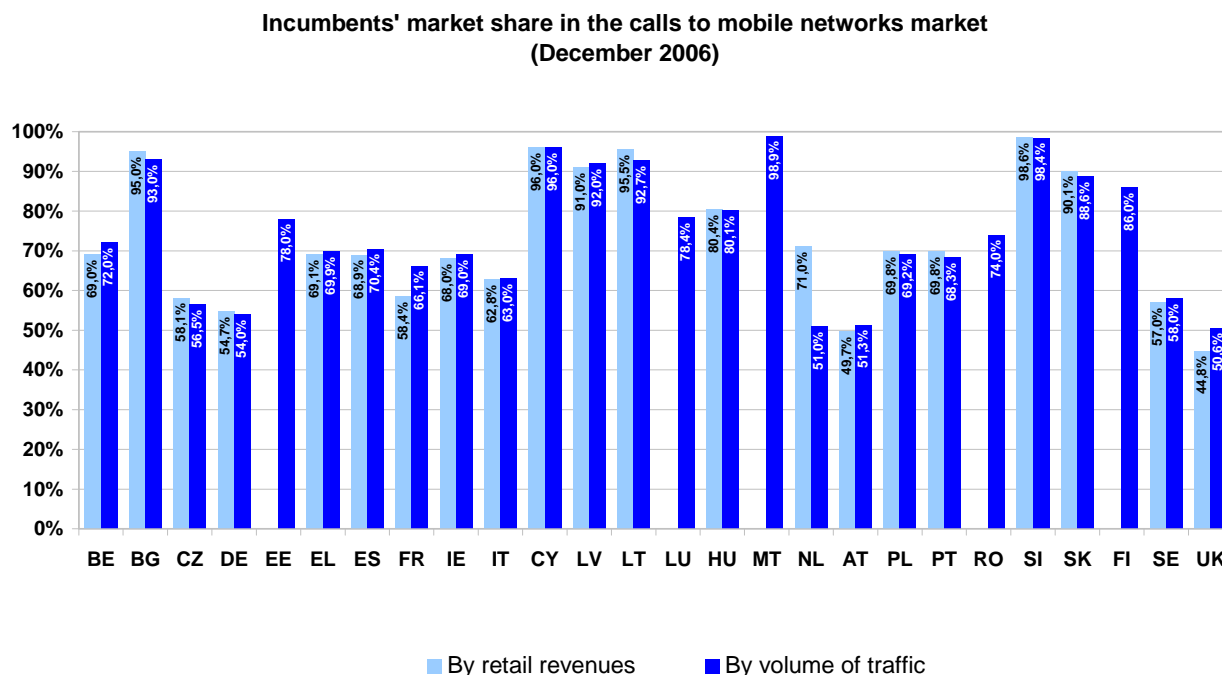


Figure 38



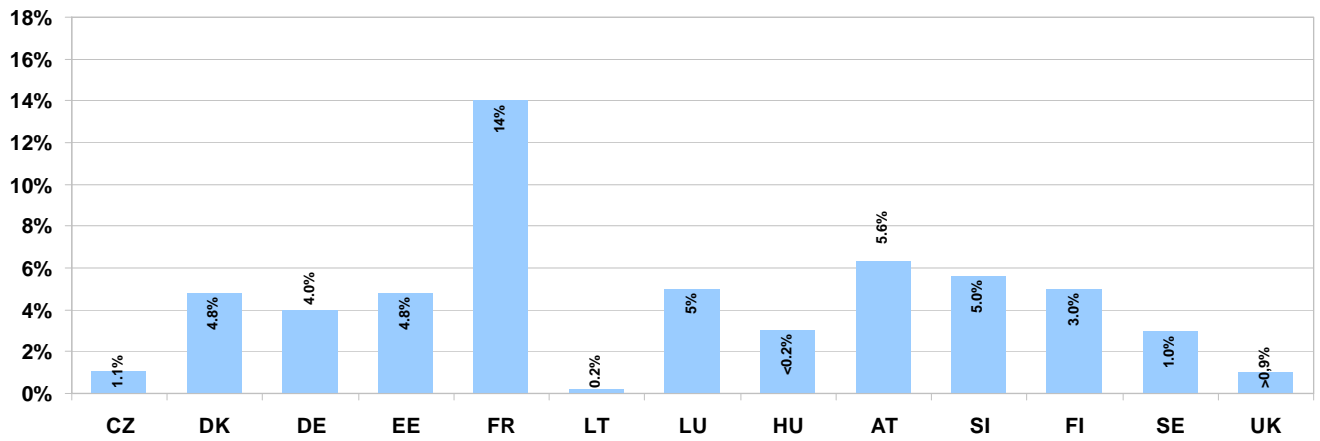
#### 2.2.4. VoIP market share

The following chart shows the available data for operators' market share on the voice over broadband market. The market shares have been calculated on the basis of outgoing minutes of traffic for all fixed calls as of 31 December 2006. The figures consider only managed VoIP services meaning publicly available telephone services (PATS) using voice over internet protocol technology), whereby the operator controls the quality of service provided through an IP network, at a speed over 128 Kbit/sec. Unmanaged voices over

IP and peer-to-peer services are not included. However, the above criteria are not followed by all MSs and the figures are not strictly comparable between countries. Furthermore, for most of the countries the figures are NRAs estimates. Managed VoIP services are not provided in Cyprus and Malta. Data are not available for missing countries. Data for Romania includes providers of PATS using IP technology to connect end users, irrespective of the fact that they are connected or not to internet.

Figure 39

**Market Share of VoIP Operators  
on the basis of volume of traffic  
(December 2006)**





### 2.3. CONSUMERS' CHOICE OF FIXED OPERATORS

This section analyses the fixed voice telephony market from the point of view of consumers. It gives information on the percentage of subscribers using an alternative provider other than the incumbent (for phone services and direct access) and the facilities used by alternative operators for the provision of voice telephony.

The data presented below have been provided by the national regulatory authorities and, unless otherwise

indicated, report the position as of July 2007. Figures for countries not included in the charts are not available and are not always comparable with those published in previous reports due to changes in the methodologies and/or in the classifications used by the Member States. Furthermore, separate data for type of calls are not available in a number of Member States. Information on consumers' use of alternative providers is unavailable in a number of new Member States. For these reasons the figures presented in this section should be considered as indicative.

#### 2.3.1. Percentage of subscribers actually using an alternative provider other than the incumbent

Incumbents' customers have the possibility of using an alternative provider, either by dialling a call-by-call prefix (*carrier selection, CS*) or by choosing to route all calls by default to the network of an alternative operator (*carrier pre-selection, CPS*). The use of an alternative operator through carrier selection/carrier pre-selection does not exclude the possibility of also using the incumbent's services. *Direct access* is also available to users through alternative operators' proprietary wireline/wireless access or through unbundled local loops leased from the incumbent. The following chart shows the percentage of EU subscribers (residential and business) using an alternative provider for local, long distance and international calls and for direct access<sup>3</sup>.

<sup>1</sup> The methodology for the calculation of the percentage of subscribers (residential + business) actually using a provider other than the incumbent operator for national calls is the following:

[X = sum of all alternative operators' subscribers (residential + business) with CPS contract + sum of all alternative operators' subscribers (residential + business) with direct access for voice telephony (ULL and proprietary infrastructure)]/[total number of residential + business subscribers of the incumbent and new entrants, with a standard/party/group telephone lines access. Direct telephone line access provided by an alternative operator can either be through proprietary infrastructure or full ULL (active lines)]. The same calculation applied for international calls, with the addition to [50% of all alternative operators' subscribers (residential and business) with CS contract] to the nominator (top number).

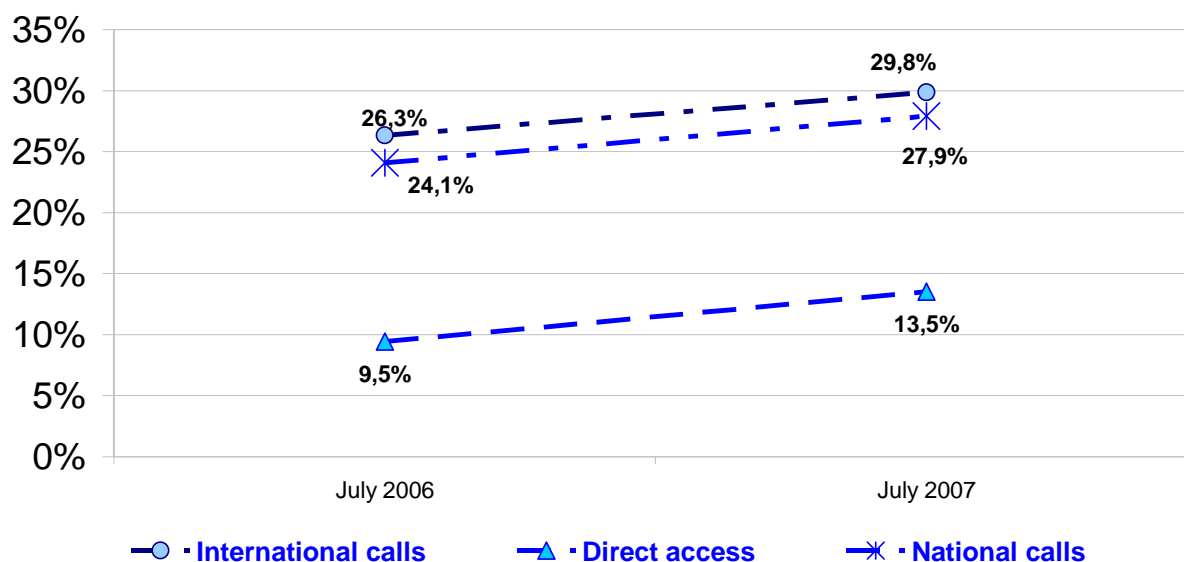
The percentage of subscribers actually using a provider other than the incumbent for direct access is calculated as the total number of subscribers with direct access, fully ULL connection or with a cable access owned by an alternative operator

As of July 2007, almost 30% of EU subscribers used an alternative provider to route international calls, almost 28% for national calls. At the same time, direct access from alternative providers was used by 13.5% of EU subscribers. Since last year, the percentage of

subscribers using an alternative provider has significantly grown. The trend of the EU average should be considered as indicative, since not all data are available for all Member States.

**Figure 40**

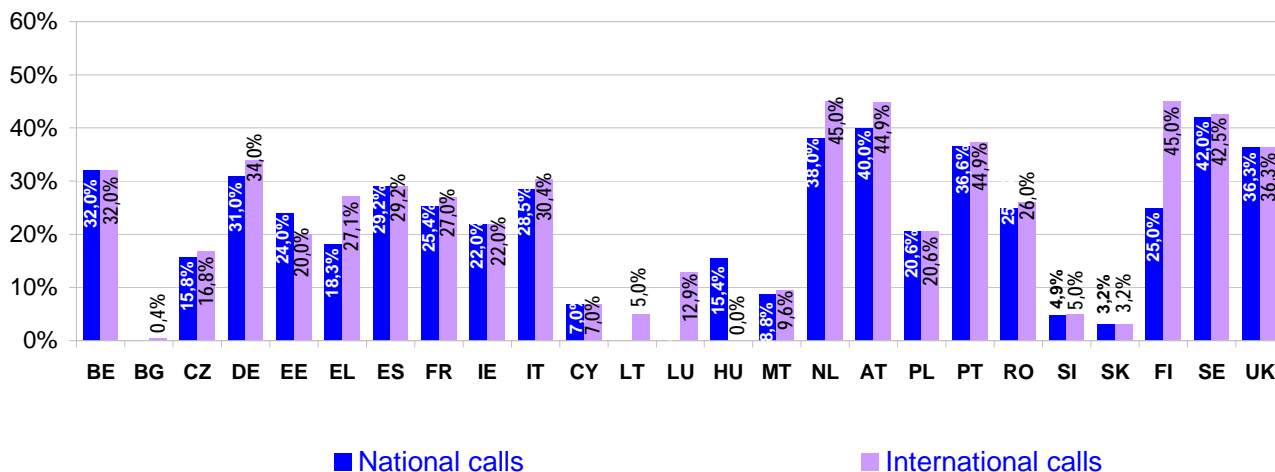
### EU subscribers using an alternative provider



The following charts illustrate the percentage of subscribers using an alternative provider for voice telephony services through carrier selection and/or carrier pre-selection and/or direct access. Where available, separate figures for national and international calls are given.

Figures for some countries are not comparable with 12<sup>th</sup> Implementation Report due to a change in the national data collection or to different data provided by NRAs.

### Subscribers using an alternative provider for voice telephony services, July 2007



Belgium: Data as of end 2006

Denmark: The data is not available in Danish statistics.

Germany: Estimation for international calls

Greece: Data as of end 2006.

Spain: Distinction of subscribers among different type of calls cannot be given, the number provided in each case is for the sum of national and international calls.

France: Only full unbundled lines are accounted in the alternative operators' direct access. VLB subscribers (8.6 millions

Estimate) are not taken into account neither in the numerator or in the denominator but in the case of full unbundling 83 millions of direct access lines including cable, full unbundling and naked ADSL)

Ireland: Subscriber data is not available. This figure is based on the number of indirect access paths as a percentage of total direct and indirect access paths in the market. No distinction between call types.

Italy: Figures are not homogeneous with previous year. Direct access including Full ULL, shared access, VULL, FTTH.

Cyprus: Estimated figure to be 5% to 7% (for both national and international calls)

Lithuania: Until the year 2007 subscribers of fixed telephony were counted according to the number of contracts (one subscriber could have several lines), now subscribers of fixed telephony according to the number of access lines (own or rented).

Malta: Maltese NRA is still missing part of this data from the incumbent.

Netherlands: Data as of end march 2007, approximation, based on 90-95% of market volume.

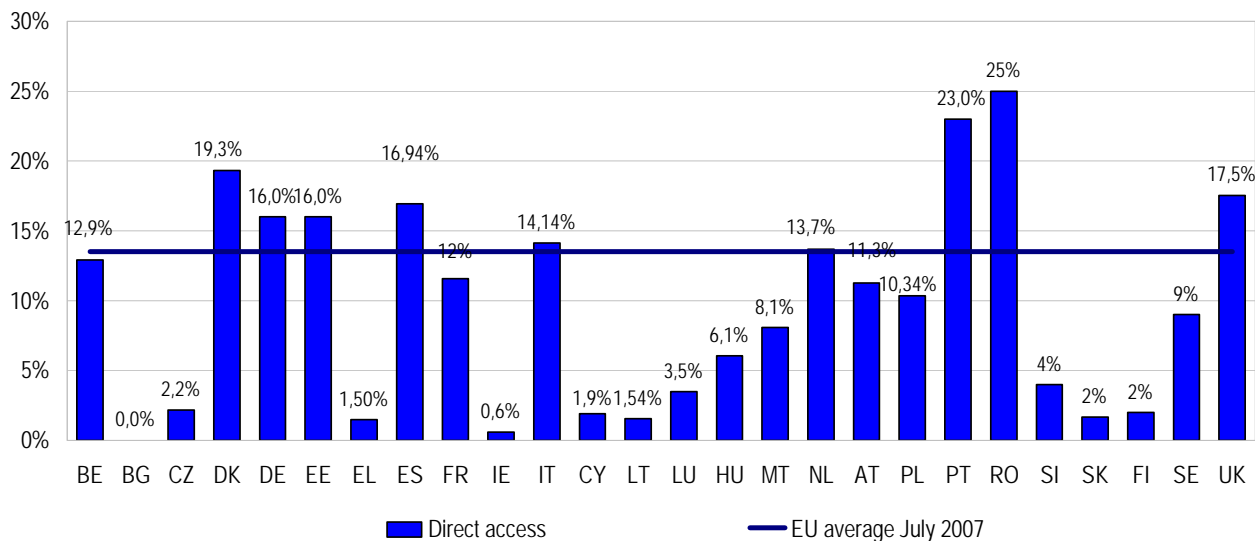
Austria: Data is for Q1/2007.

United Kingdom: 2007 data not yet available - end 2006 figures are shown. Direct access Cable plus OLO (including full LLU); excludes WLR.

Figure 41

### Subscribers using an alternative provider for direct access, July 2007

EU average: 13.5%



Direct access is the total number of subscribers with direct access, fully LLU connection or with a cable access owned by an alternative operator.

Belgium: Data as of end 2006.

Denmark: The indicate figure comprises only direct access via. PSTN or ISDN and thus excludes direct access to fixed network telephony via. Cable or WIMAX. Please note that direct access through alternative operators presently owned by TDC is included in the reported figures.

France: Full unbundled lines are not taken into account in the direct access figures of alternative operators. VoB (almost 8.6 millions) are not taken into account either in the numerator (they are no requested) and in the denominator except in the case of full unbundling. Total (3 millions lines)" cable + full unbundling and naked ADSL

Italy: Data non in homogeneous terms with previous year. Direct access including Full ULL, shared access, VULL, FTTH.

Cyprus: Approximation 1.9%, based on 90-95% of market volume.

Malta: We are still missing part of this data from the incumbent. It is expected that data for 2007 will be available soon and will be sent as soon as received.

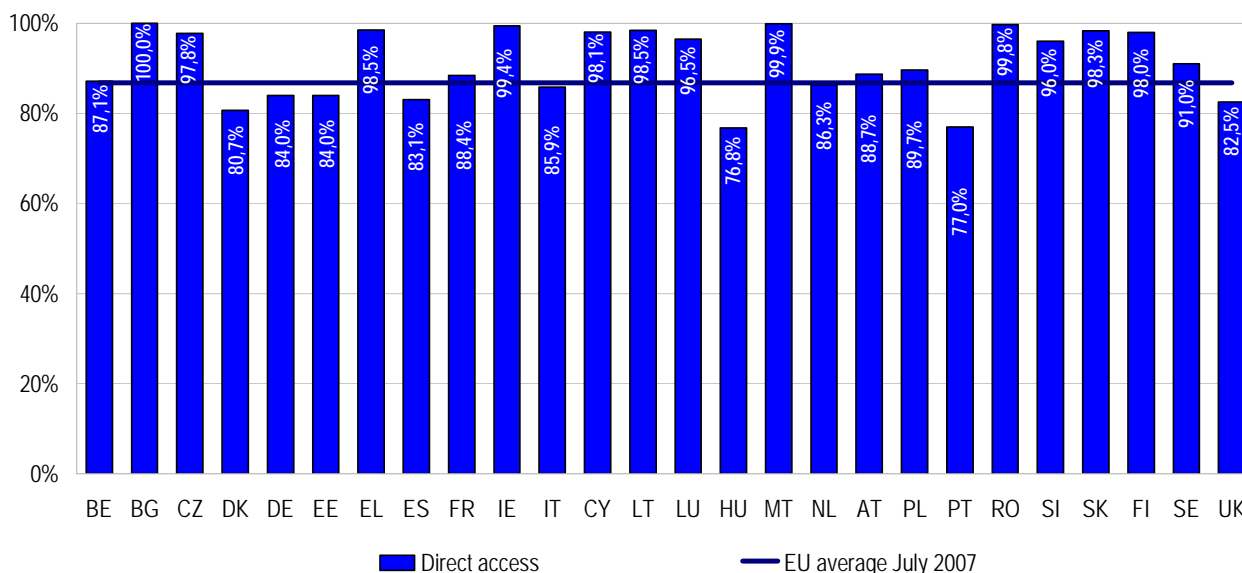
Netherlands: Data as of 31-3-2007, approximation, based on 90-95% of market volume.

Austria: 2007: data for Q1/2007.

Finland: National are local calls, long distance calls and call from fixed to mobile (estimated).

United Kingdom: 2007 data not yet available - end 2006 figures are shown. Direct access Cable plus OLO (inc full LLU); excludes WLR.

Subscribers using incumbent for direct access, July 2007  
EU average: 86.5%



**2.3.2. Facilities used by new entrants for the provision of voice telephony**

This section provides information on the facilities used by new entrants to offer voice telephony, particularly to residential users.

Data have been provided by the national regulatory authorities and refer to July 2007.

Alternative operators can route users to their network either through a carrier selection system (CS), whereby a user dials a prefix on a call-by-call basis, or by carrier pre-selection (CPS), where the user’s calls are routed to the new entrants’ network on an automatic basis. New entrants can also provide voice services via direct access to users (through proprietary wire/wireless access or through unbundled local loops leased from the incumbent).

These facilities are not mutually exclusive and very often the same operator uses all three at the same time depending on the type of customers (business or residential), the type of services (national or international

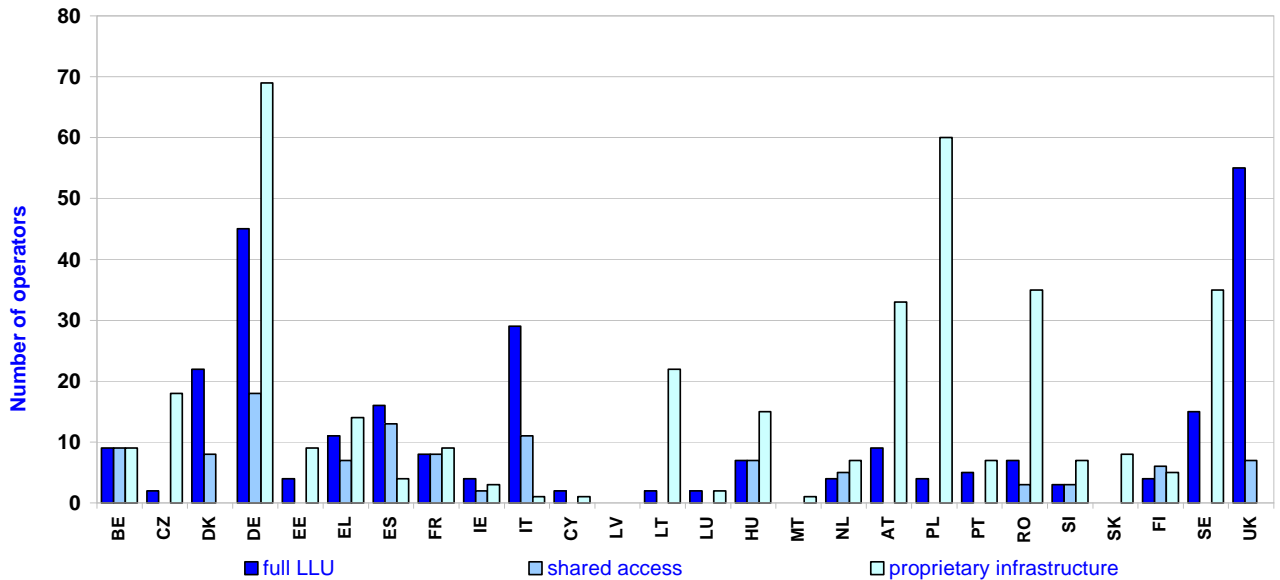
calls), the geographical area, the availability of LLU, etc. The following figures should therefore be read separately and not aggregated as country totals.

The following four charts show the number of operators using full local loop unbundling, shared access and proprietary infrastructure by Member State for July 2007. The charts also present an estimate of the number of operators using these facilities as a percentage of the number of active alternative operators (excluding the incumbent). The figures do not show to what extent the operators are offering services to residential and/or business users; nation-wide or only in local areas; in some cases it is not possible to discern whether operators offer all types of calls or only long-distance and international calls.

As of 1 July 2007, 21.15% of EU alternative operators offered the voice telephone service through full unbundled local loop, 8.41% through shared access and 29.40% through proprietary infrastructure.

Figure 42

**Number of alternative operators that are actually offering public voice telephony through direct access, July 2007**



Belgium: LLU figure refers to the number of agreements;

Bulgaria: Not available

Denmark: Number of agreements between the incumbent and alternative operators. Information about whether these operators are actually offering public voice telephony through the LLU's and shared access lines, is not available.

France: In case of public service delegations, only the operators chosen by local administration have been accounted.

Italy: Number of agreements signed with the incumbents.- Source: Incumbent's data.

Netherlands: Data for full LLU and shared access as of end March 2007. Proprietary access includes Regional cable operators, many using VoB. Dozens of very small local FTTH initiatives offer telephony services, but specific data on this is not available.

Austria: Estimation

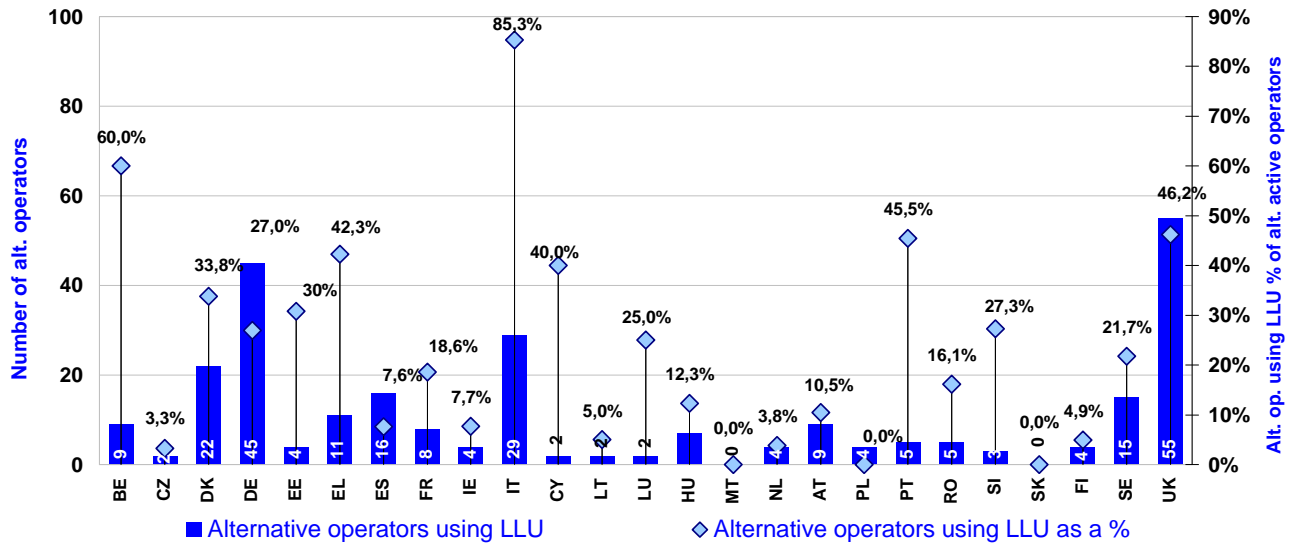
Poland: November 2007: Number of LLU agreements with incumbent: 9 (two operators are actually offering public voice telephony through LLU)

Finland: Includes major incumbent operators offering services outside their own SMP area.

United Kingdom: for LLU Number of agreements with the incumbent - actual number will be smaller; mid 2007 data not yet available. For shared access: 2007 data not yet available - end 2006 figures are shown. For proprietary infrastructure, data is not available.

Figure 43

### Number of alternative operators using full unbundled local loops as a % of active alternative operators, July 2007



Belgium: LLU refers to the number of agreements.

Bulgaria: Not available

Denmark: Number of agreements between the incumbent and alternative operators. Information about whether these operators are active or non-active is not available.

France: In case of public service delegations, only the operators chosen by local administration have been accounted.

Italy: Number of agreements signed with the Incumbent- Source: Incumbent.

Lithuania: Number of agreements between the incumbent and alternative operators, there is no information whether they are used for fixed telephony or not.

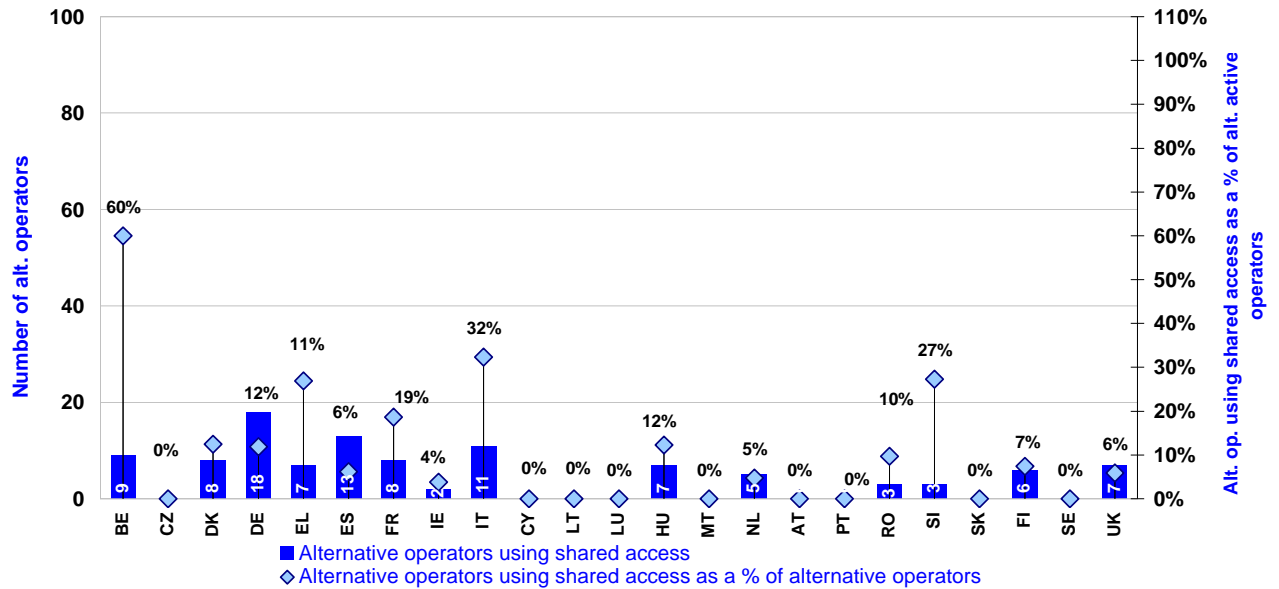
Netherlands: Data for full LLU as of end March 2007.

Poland: November 2007: Number of LLU agreements with TP S.A.: 9 (two operators are actually offering public voice telephony through LLU)

United Kingdom: For LLU Number of agreements with BT - actual number will be smaller; mid 2007 data not yet available.

Figure 44

Number of alternative operators using shared access as a % of active alternative operators, July 2007



Belgium: LLU refers to the number of agreements.

Bulgaria: Not available

Denmark: Number of agreements between the incumbent and alternative operators. Information about whether these operators are active or non-active is not available.

Estonia: No shared access users.

France: In case of public service delegations, only the operators chosen by local administration have been accounted.

Italy: Number of agreements signed with the Incumbent- Source: Incumbent.

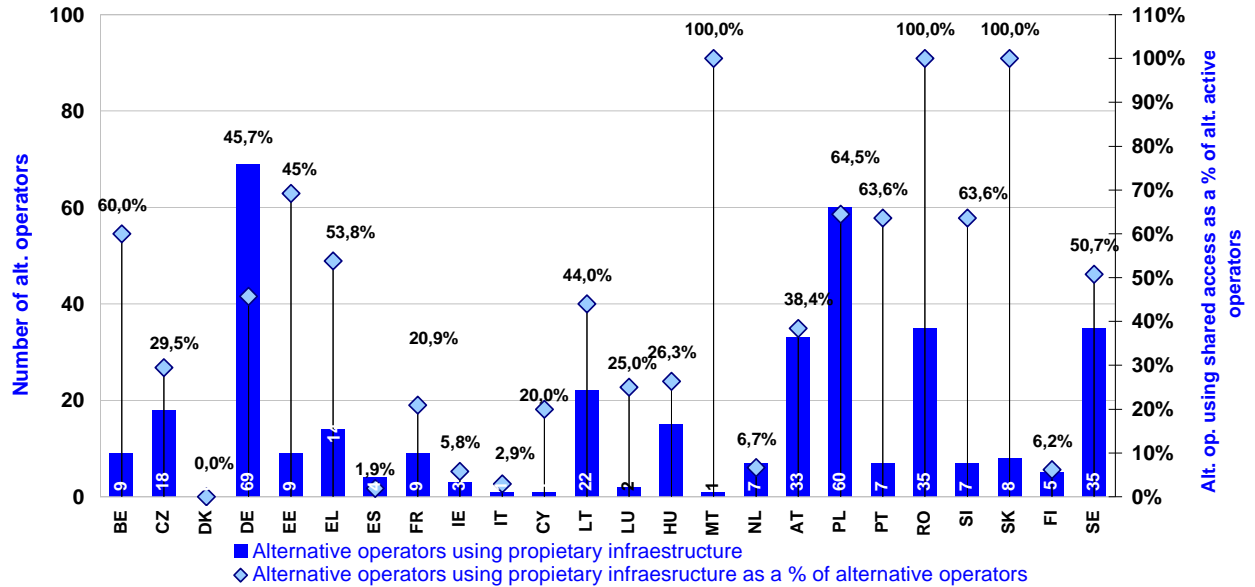
Netherlands: Data for full LLU and shared access as of 31-3-2007. Proprietary access includes Regional cable operators, many using VoB. Dozens of very small local FTTH initiatives offer telephony.

United Kingdom: For shared access: 2007 data not yet available - end 2006 figures are shown.



Figure 45

Number of operators using proprietary infrastructure as a % of alternative operators, July 2007



Belgium: LLU refers to the number of agreements.

Bulgaria: Not available

Denmark: Number of agreements between the incumbent and alternative operators.

France: In case of public service delegations, only the operators chosen by local administration have been accounted.

Italy: Number of agreements signed with Telecom Italia - Source: Telecom Italia.

Lithuania: Proprietary infrastructure includes cable TV operators that provide fixed telephony

Netherlands: Data for full LLU and shared access as of 31-3-2007. Proprietary access includes Regional cable operators, many using VoB.

Dozens of very small local FTTH initiatives offer telephony.

United Kingdom: Data not available.

## 2.4. FIXED NUMBER PORTABILITY

Fixed number portability enables fixed subscribers to retain their number when they move from one operator to another.

Figures are provided by NRAs and refer to the number of transactions calculated up to 1<sup>st</sup> October each year, unless stated otherwise under each table.

Number portability is not yet in place in Romania and Bulgaria however it is expected to start being implemented in 2008.

Only one country (Slovakia) has started to implement fixed number portability in 2007.

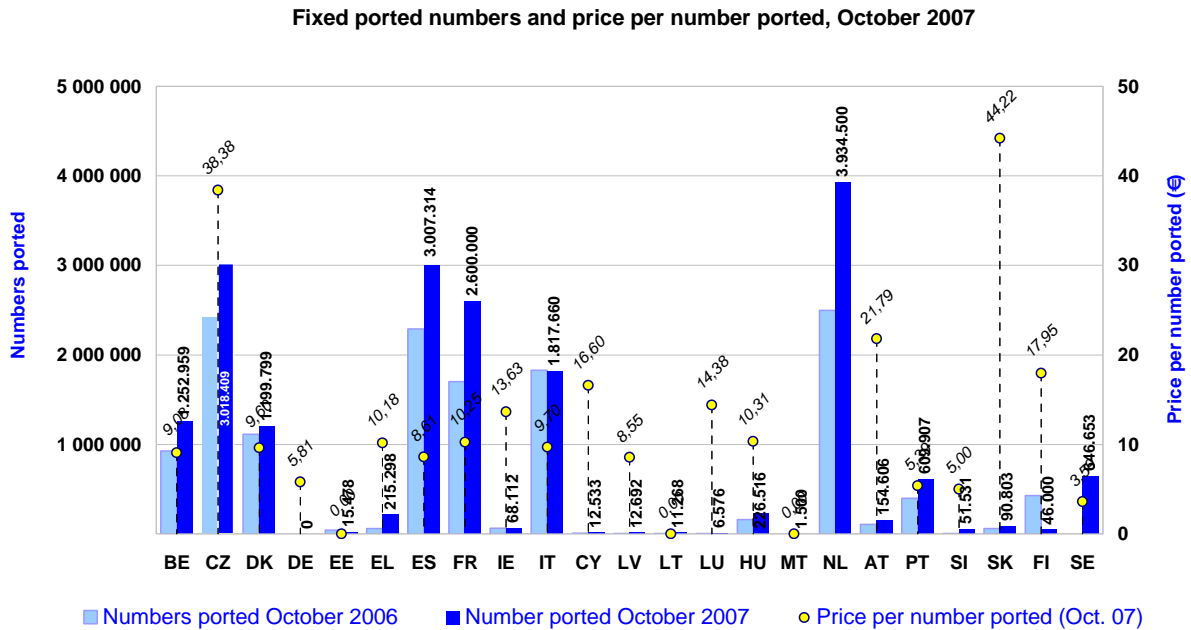
Fixed number portability has continued to play an important role in encouraging competition. As of October 2007, almost 19 million subscribers in 23 Member States have ported their number since the introduction of this possibility (5 million from October 2006 and October 2007). Apart from the countries that have introduced fixed number portability only during 2007 (Malta and Slovakia), there has been significant growth in the amount of fixed numbers ported in Greece, Spain, France, The Netherlands, Slovenia and Czech Republic.

Inter-operator prices for fixed number portability refer to the amount charged by the incumbent to the recipient operators for porting one telephone geographic number (excluding VAT). This price may vary depending on a number of factors. In some countries the price for a non-geographic number is different. Where available, information on price for non-geographic number portability is added in the footnote.

In Estonia, Lithuania and Malta, there is no charge for the porting of fixed numbers.

According to the data at our disposal for 22 Member States, the EU weighted average price as of October 2007 for a fixed number ported is €9.69. Prices in the Czech Republic, Ireland, Austria and Finland are significantly higher than the EU average, while in 7 Member States (Belgium, Denmark, Germany, Latvia, Italy, Slovenia and Sweden) prices are below 10 €. The fixed number portability is free of charge in Lithuania and in Estonia. Since October 2006 a significant decrease in the price for number portability has occurred in Ireland (-48%), Portugal (-60%), Slovenia (-50%), and Sweden (-70%). No country had significant price increase.

Figure 46



Data is not available for UK, Poland and Italy (2007). Number portability is not yet available in Bulgaria and Romania. .  
 Estonia, Malta, Lithuania: Numbers are ported free of charge.

France: Data for 2006 fixed ported numbers has changed due to new methodology.

Luxembourg: The data as from August 2006.

Malta: Started first quarter 2007.

Netherlands: Since December 2006 OPTA has exact numbers, differing from estimates in previous years.

Slovakia: From January to October 2007. Price only charged for Complex order (ISDN, DDI) - Price for DDI only.

## 2.5. PUBLIC VOICE TELEPHONY TARIFFS

This section examines the charging system, the line rental charges and the main tariffs for public fixed voice telephony charged by the incumbent operators in each Member State in September 2007. The price trend over the past 10 years is also analyzed.

The incumbent operators are: Belgacom for Belgium, BTC for Bulgaria, Telefonica O2 for Czech Republic, TDC for Denmark, Deutsche Telekom for Germany, Elion for Estonia, OTE for Greece, Telefonica for Spain, France Telecom for France, Eircom for Ireland, Telecom Italia for Italy, CYTA for Cyprus, Lattelekom for Latvia, TEO for Lithuania, P&T Luxembourg for Luxembourg, Magyar Telekom for Hungary, Maltacom for Malta, KPN for the Netherlands, Austria Telekom for Austria, Polish Telecom for Poland, Portugal Telecom for Portugal, RomTelecom for Romania, Telekom Slovenije for Slovenia, Slovak Telecom for Slovakia, TeliaSonera for Finland, TeliaSonera for Sweden, and British Telecom for the United Kingdom.

The incumbent operators still retain a large market share, but new entrants are increasingly gaining market share by offering cheaper prices for certain types of calls (usually long-distance (national) or international) or destination and/or using cheaper technologies (IP). The prices charged by incumbents do not necessarily, therefore, represent the lowest prices available. A comparison between the rates charged by incumbents and alternative operators for a sample of countries is also shown.

The figures and information are taken from a study carried out for the Commission by Teligen, Harris Interactive UK Ltd. The data are collected from primary sources (i.e. directly from the incumbent operators).

NRAs were given the possibility to check these data before finalizing this report. All NRAs, with the exception of Italy and Hungary, provided comments and approved these data.

Different sets of charges for fixed national voice telephony services are shown in the following sections:

- the minimum costs for different types of calls (local, national, international calls and calls towards mobile networks), depending on the charging system adopted;
- the monthly rental charged by incumbent operators;
- the charges for a composite basket of calls (local, national, international fixed calls and calls to mobile), that gives an estimate of the average monthly spending by a typical "European business/residential user" for the whole range of calls;
- the charges for a basket of national calls, that gives an estimate of the average monthly spending by a typical "European business/residential user" for fixed national calls;

- the basket of international calls for each country that indicates the average price of a single call from the originating country to OECD destinations. In addition, the price of individual calls to specific destinations is also shown.

- the price of some individual calls (3- and 10-minute local, national and international calls) at peak time, inclusive of any initial charge. For those countries where unit-based charging is used, the price of a whole unit is calculated.

For the various types of calls, a benchmark based on a comparison with US and Japan is also included. For the USA, the prices for national calls are those charged by Verizon (in New York City) and the prices for international calls are those charged by AT&T. For Japan, the national call prices are those charged by NTT and the international call prices are those charged by KDD.

The EU average tariffs shown in the charts are weighted average (by population of the Member States).

### 2.5.1. CHARGING SYSTEM

The billing system for public voice telephony services usually comprises two components: an initial charge applied at the beginning of a call and a charge for the remainder of the call (that may not depend on the type of initial charge used).

#### 2.5.1.1 INITIAL CHARGES

There are different types of charges applied at the beginning of a call, either alone or in combination. The charging method used for the remainder of the call may not depend on the type of initial charge used. The types of charges are:

- Call set-up charge rose at the start of the call (when the call is answered). This charge does not offer any call time. Per second or per unit charges apply from the beginning of the call.
- Initial charge that is used in the same way as call set-up, but in addition includes a certain number of seconds call time before normal time-based charging starts.
- Unit charge in effect works the same way as the initial charge: A full unit is charged at the beginning of the call, providing a certain number of seconds call time until the next unit is charged. Depending on the principle used by the operator (synchronous / asynchronous) the numbers of seconds call time in the first unit may be less than the specified unit duration.

- Minimum charging is normally used with per second billing, to ensure the operator obtains minimum revenue per call. If the call duration is short, the actual call charge may be less than the minimum charge. In such cases the minimum charge will be applied.

In the calculation of the minimum charge for calls using per second billing it is assumed that the call is terminated as soon as it starts, making the minimum charge for the call equal to any call set-up or defined minimum call charge. If no such additional charges exist, the minimum charge will be zero.

#### **2.5.1.2 CHARGING SYSTEM DURING THE CALL**

There are, in principle, 3 ways of charging calls. The fact that most operators tend to publish the duration charges on a per minute basis does not itself indicate which system is used. The 3 principles are:

- Real time charging (also known as “per second billing”) allows the cost of the call to be calculated to the exact duration of the call (normally nearest second). A call set-up charge, initial charge or minimum charge may be applied to this structure, in addition to the duration charge.
- Unit based charging uses a fixed price unit. The duration of this unit will vary with the destination of the call and time of day. Call duration will always be raised to a multiple of whole units, so the user will nearly always pay for more time than is used. A call set-up charge may be applied to this structure, but is relatively rare.

- Fixed period charging uses a variable price, but fixed duration unit. The call is normally charged on a per minute basis, or per 6 seconds. The price for the period will vary with destination and time of day. The charged duration of the call will be raised to a multiple of whole periods. A call set-up charge or initial charge is often implemented in the form of a higher charge for the first minute or period. This initial charge may vary with destination and time of day.

The real time charging method can be perceived to be the one fairest to the customer, as he/she will only pay for what is actually used. This does however not guarantee that this method will always give the lowest overall prices. What has happened in some countries is that when going from a unit-based system to real time charging the average per minute price have been kept the same. The cost per call has then often been seen to go up because an additional (and new) call set up charge has been added. Especially medium duration calls may suffer, depending on the price structure before and after the change.

But it is no doubt that the real time charging method is more convenient to the user, as it is easier to understand and relate to.

The added cost of call set up charges is by some operators offset by a duration allowance per call, making the first part of the call “free” once the call set up charge is levied. This provides a similar mechanism to the minimum charge used by some other operators.

Figure 47

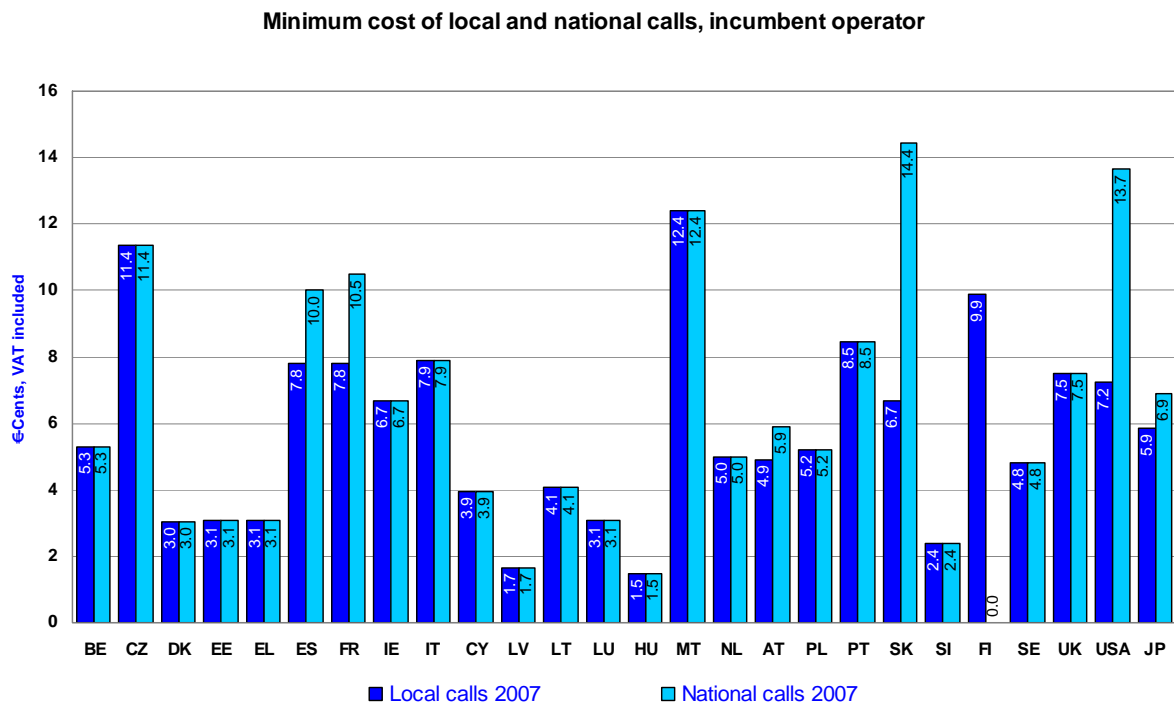
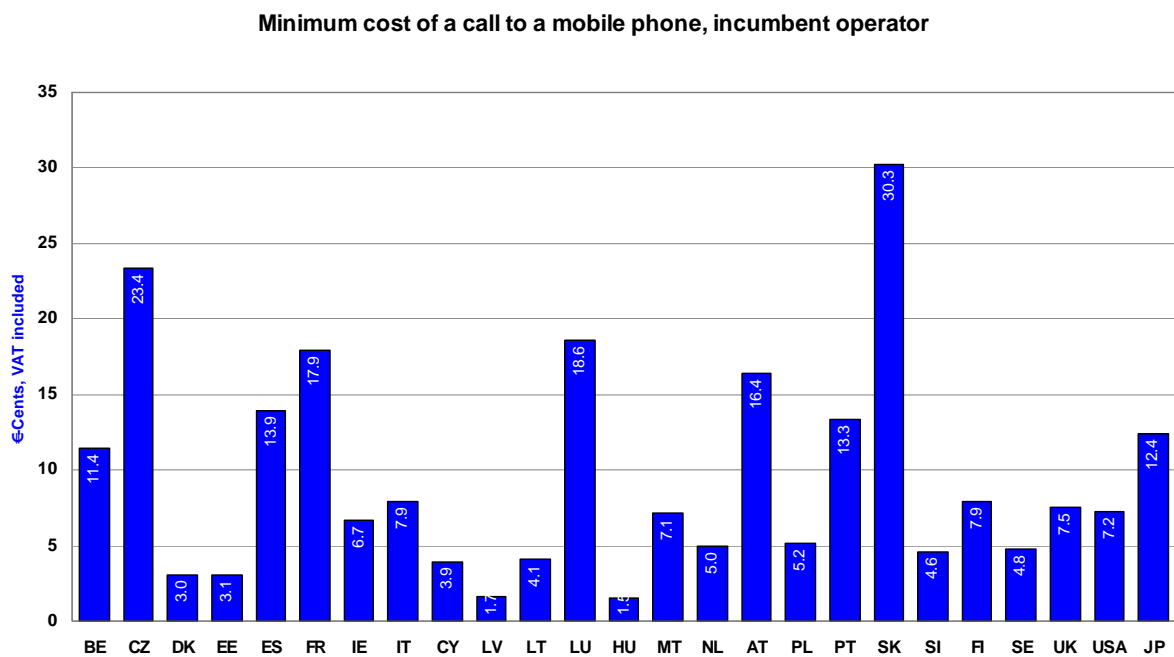


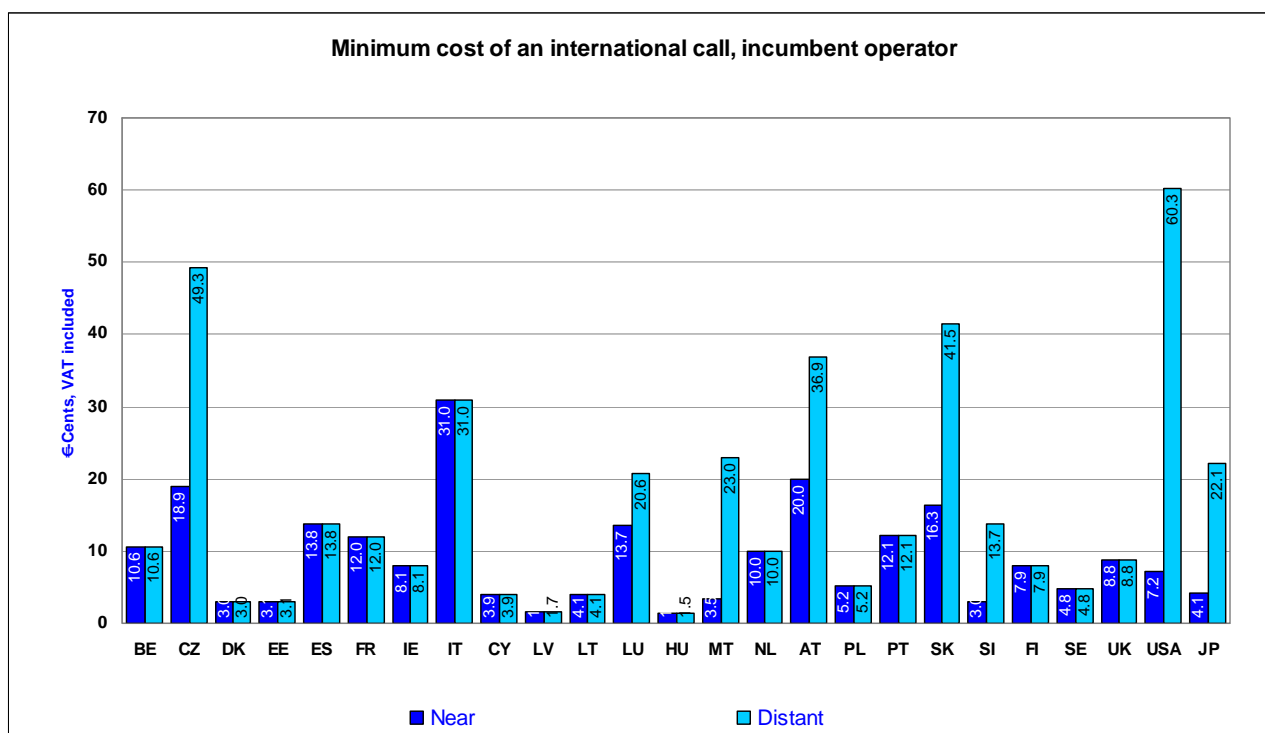
Figure 48



Initial charges for international calls will normally follow similar rules as for national calls. Where unit based charging is used the initial period duration

covered by the first unit may change with the destination. In most countries prices are the same for business and residential customers.

Figure 49



### 2.5.2. MONTHLY RENTAL CHARGED BY THE INCUMBENT OPERATORS

The following charts show the incumbent's monthly line rental charges for residential and business users in September 2007 and September 2006. In order to reflect the real charges actually paid by users, values are expressed in € including VAT for residential users and excluding VAT for business users.

A number of countries have different rental charges for business and residential customers.

In some countries the monthly rental will depend on where in the country the line is connected. The charges shown are for the capital/most densely populated area.

Figure 50

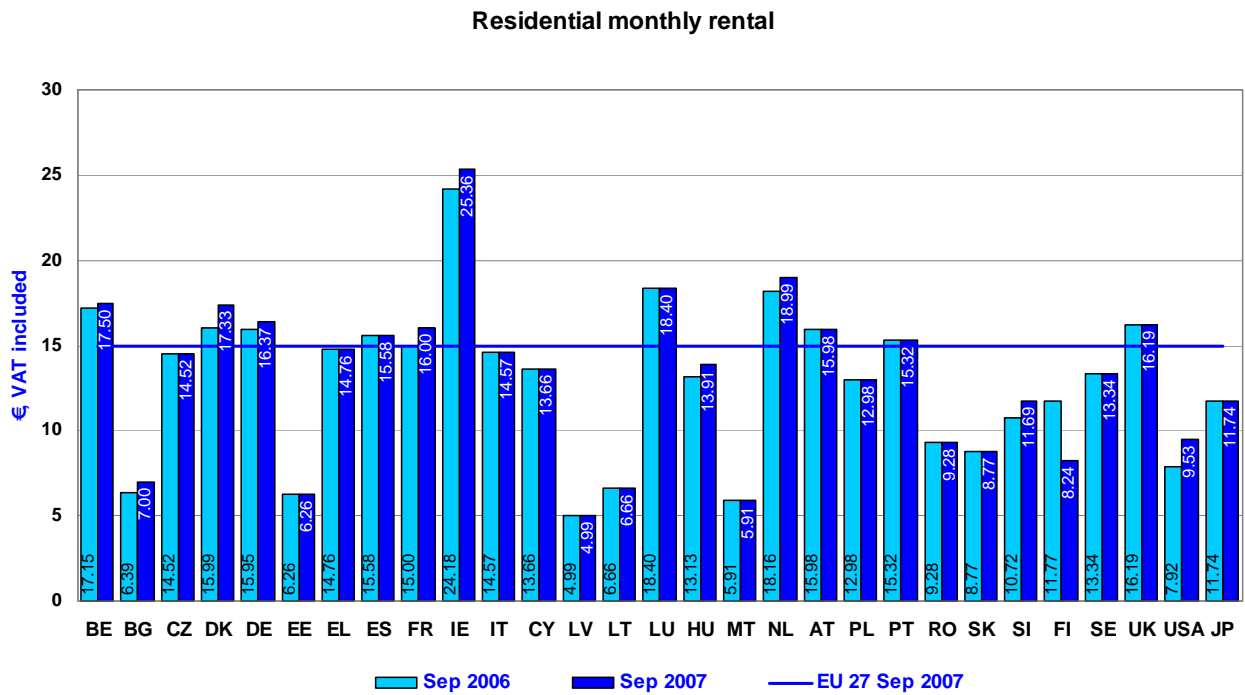
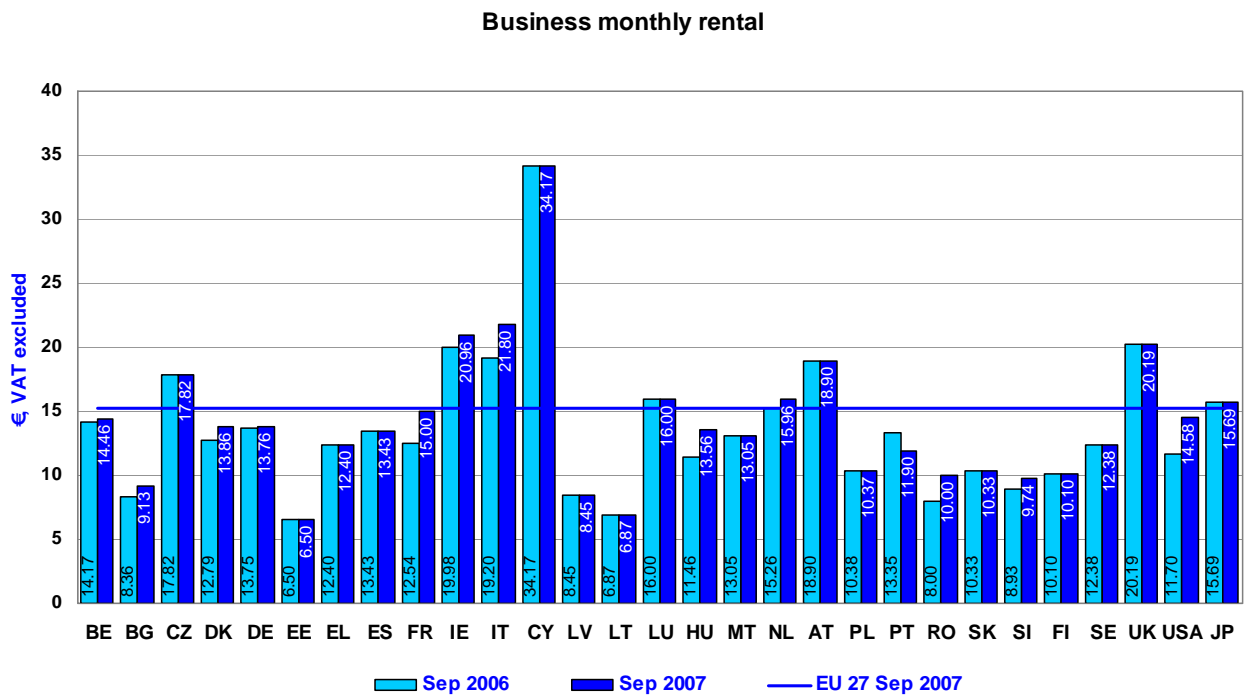


Figure 51



The following charts show the EU weighted average variation in nominal terms of the residential and business monthly line rental charge.



Figure 52

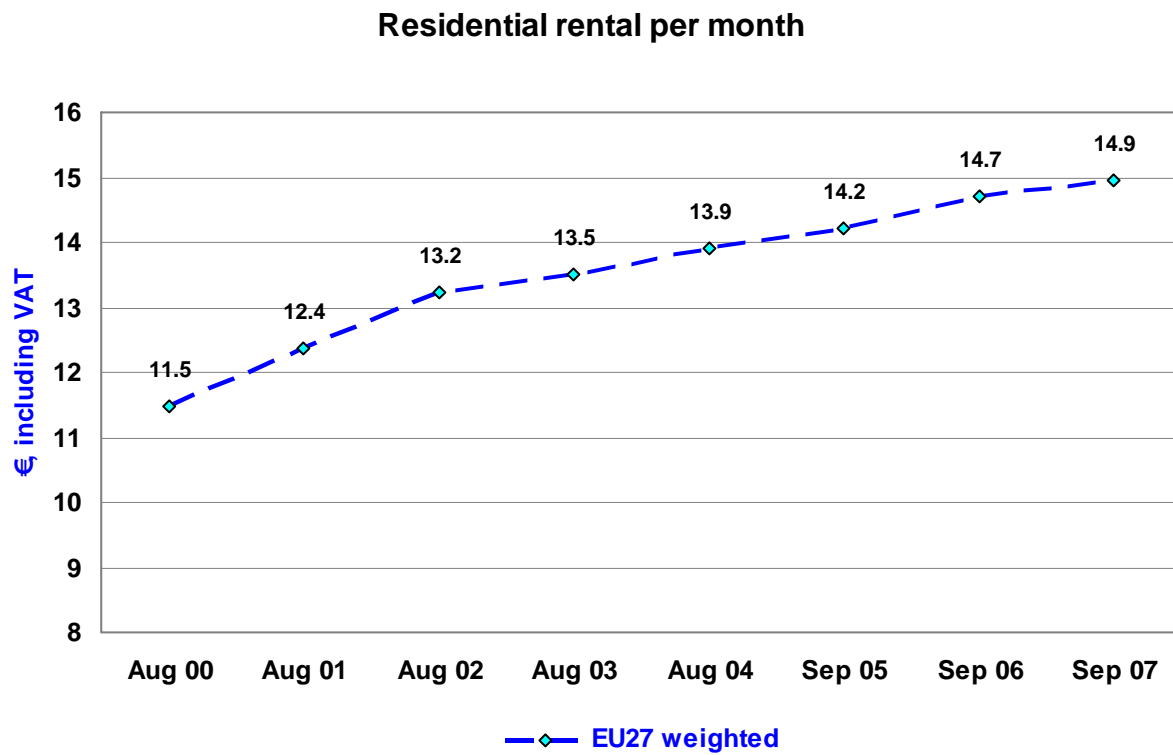
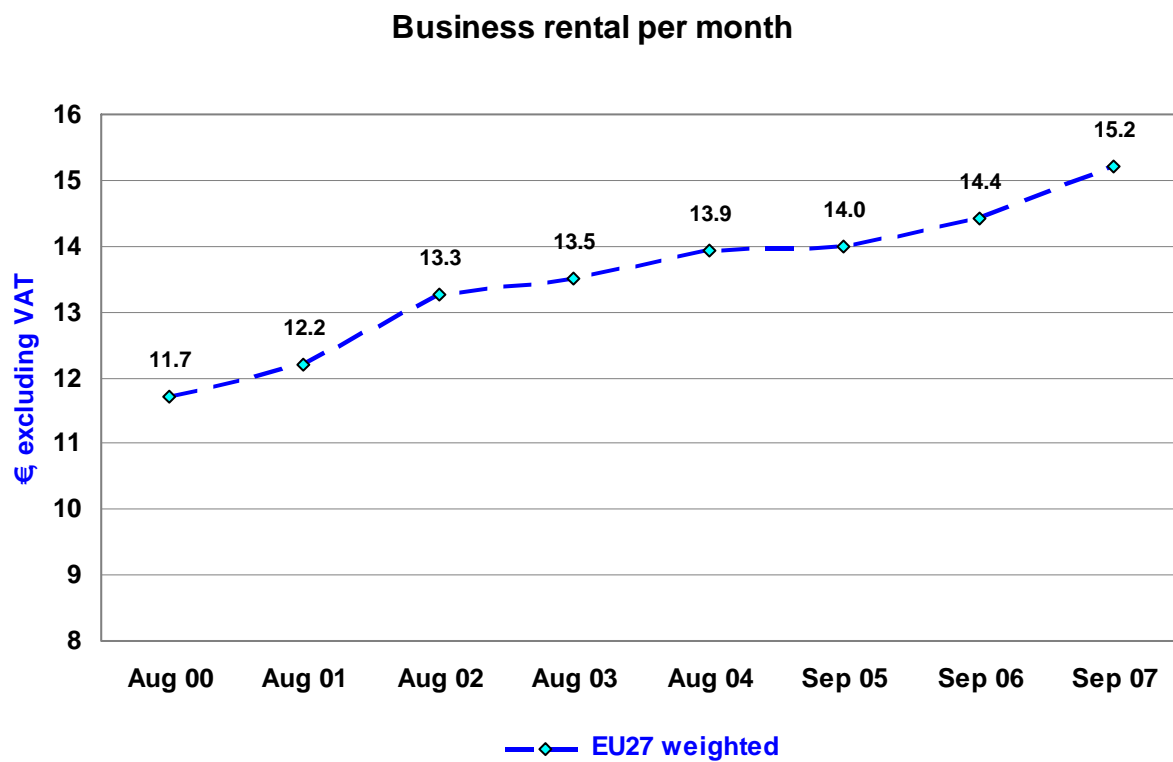


Figure 53



### 2.5.3. AVERAGE MONTHLY EXPENDITURE (COMPOSITE CALL BASKET)

The figures presented in this section are intended to provide an estimate of the average monthly expenditure of a “standard” European consumer (business and residential). The Basket Methodology for Telecommunications Cost Comparison has been devised by the OECD and accepted in most countries as the most stable and neutral method of comparison.

The user is assumed to have a contract for the provision of voice telephony services with the incumbent operator and to use only this operator for all types of calls (local, national, international, calls to mobile). Since consumers are making increasing use of call-by-call carrier selection, in particular for specific highly discounted types of calls (i.e. international and national), the figures given below are purely indicative, and do not necessarily reflect the cheapest solution available.

The charts below show the average monthly expenditure for standard residential and business users as of September 2007, expressed in € based on the standard tariffs charged by the incumbent operators (i.e. excluding any discount packages). This means that lower costs can be achieved if the user subscribes to one or more discounted packages.

The basket of calls used to estimate average monthly expenditure is the “2000 composite OECD basket” which includes fixed national calls, international calls and calls to mobile networks.

The OECD residential/business baskets are defined as follows (on an annual basis):

The fixed (i.e. non-recurring) charges include the annual line rental charge plus the charge for the installation of a new line (depreciated over 5 years). Fixed charges for residential users include VAT, while for business users VAT is excluded.

The usage charge for residential users refers to a basket of 1.200 national calls to fixed lines, plus 120 calls (with an average duration of 2 minutes) to mobile networks (representing 10% of the number of calls to fixed lines), plus 72 international calls (representing 6% of the number of calls to fixed lines). The usage charges for national calls to fixed lines are calculated with a weighted distribution over 14 distances from 3 to 490 km, at representative times of day (4 calls during the week and 2 during the weekend). The call duration varies from 2.5 to 7 minutes, depending on time and distance. The usage for residential users is weighted towards off-peak hours, and with typically long calls. Only 36% of the calls are within normal business hours; 74% are for distances below 10 km; 9% are for distances above 100 km.

The usage charge for business users refers to a basket of 3 600 national calls to fixed lines plus 360 calls (with an average call duration of 2 minutes) to mobile

networks, plus 216 international calls. The usage charges for national calls to fixed lines are calculated with a weighted distribution over 14 distances from 3 to 490 km, at representative times of day (4 calls during the week and 2 during the weekend), and with a call duration of 3.5 minutes regardless of time of day and distance. The usage for business users is weighted towards business hours, and with typically short calls. Over 86% of the calls are within normal business hours; 64% are for distances below 10km; 12.5% are for distances above 100 km.

A full description of the methodology can be found at the end of this report.

There was a revision of the OECD baskets in February 2006.

Highlights of the new 2006 OECD baskets are:

- 5 new baskets for Low, Medium and High residential usage and business baskets for SOHO and SME usage.
- Fixed to Mobile calls now include calls to up to 4 national mobile networks, weighted by subscriber numbers.
- A range of tariff packages from the incumbent operator are now included, with automatic selection of the cheapest package for each basket.
- Traffic weights and volumes have been updated with recent information.

#### Low usage residential basket

The usage charge for low usage residential users refers to a basket of 600 calls, where 76% (456 calls) are to national fixed lines, 19% (114 calls) are to mobile networks, and 5% (30 calls) are to international destinations. The usage for residential users is weighted towards off-peak hours, and with typically long calls. 58% of the calls are within normal business hours; 76.5% are for distances below 10 km; 7% are for distances above 100 km.

#### Medium usage residential basket

The usage charge for low usage residential users refers to a basket of 1200 calls, where 75% (900 calls) are to national fixed lines, 23% (276 calls) are to mobile networks, and 2% (24 calls) are to international destinations. The usage for residential users is weighted towards off-peak hours, and with typically long calls. 55.5% of the calls are within normal business hours; 70% are for distances below 10 km; 11.5% are for distances above 100 km.

#### High usage residential basket

The usage charge for low usage residential users refers to a basket of 2400 calls, where 65% (1560 calls) are to national fixed lines, 31% (744 calls) are to mobile

networks, and 4% (96 calls) are to international destinations. The usage for residential users is weighted towards off-peak hours, and with typically long calls. 60.5% of the calls are within normal business hours; 78% are for distances below 10 km; 7% are for distances above 100 km.

The usage charges for national calls to fixed lines for residential users are calculated with a weighted distribution over 14 distances from 3 to 490 km, at representative times of day (4 calls during the week and 2 during the weekend). The call duration varies from 3.7 to 7 minutes, depending on time and distance.

#### SOHO business basket

The usage charge for low usage residential users refers to a basket of 1800 calls, where 67% (1206 calls) are to national fixed lines, 29% (522 calls) are to mobile networks, and 4% (72 calls) are to international destinations. The usage for business users is weighted towards business hours, and with typically short calls. 79% of the calls are within normal business hours; 68.5% are for distances below 10 km; 12.5% are for distances above 100 km.

#### SME business basket

The usage charge for low usage residential users refers to a basket where 30 users each have 2800 calls, where 72% (2016 calls) are to national fixed lines, 20% (560 calls) are to mobile networks, and 8% (224 calls) are to international destinations. The usage for business users is weighted towards business hours, and with typically short calls. 81% of the calls are within normal business hours; 70.5% are for distances below 10 km; 11% are for distances above 100 km.

The usage charges for national calls to fixed lines are calculated with a weighted distribution over 14 distances from 3 to 490 km, at representative times of day (4 calls during the week and 2 during the weekend). The call duration varies from 1.9 to 3.1 minutes, depending on time and distance.

The different 2006 OECD baskets may select different tariff packages as the cheapest. The revision brought a new element into the baskets, namely the inclusion of more tariff packages for each country. This allows for a comparison of the “standard” package with the “cheapest” package.

### 2.5.3.1 2000 COMPOSITE OECD BASKETS

Figure 54

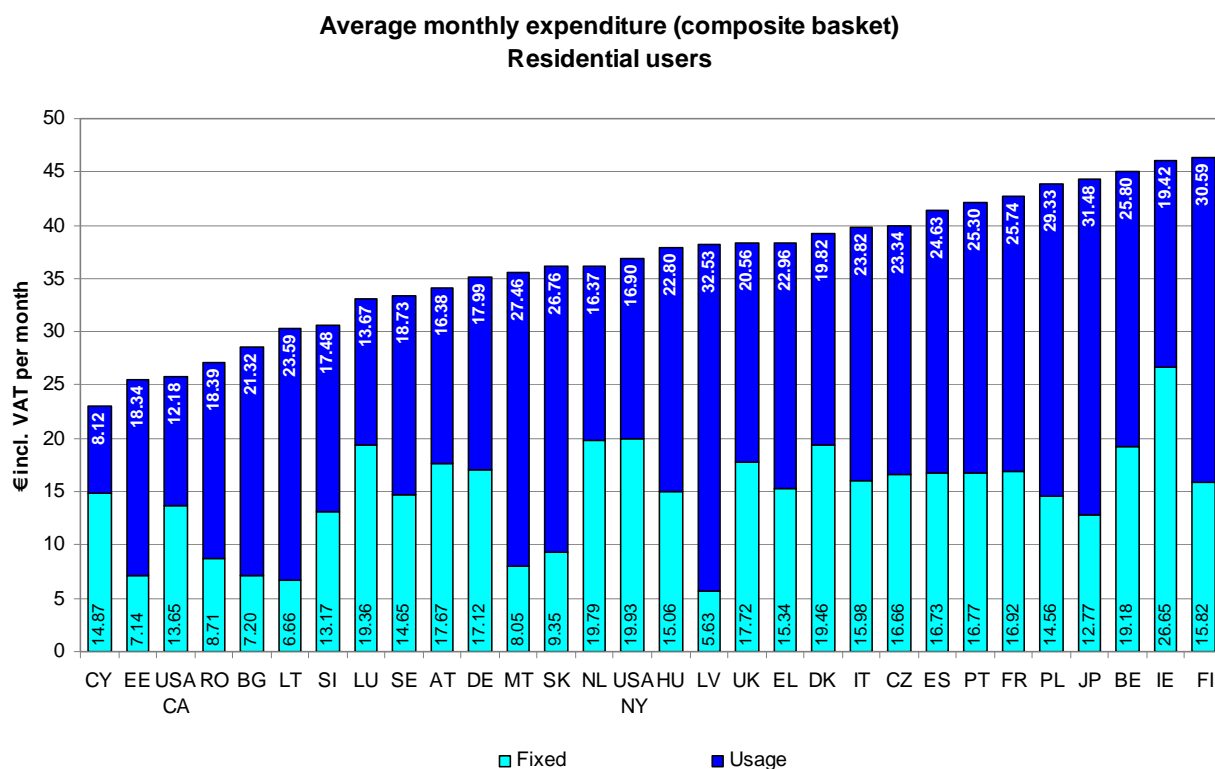
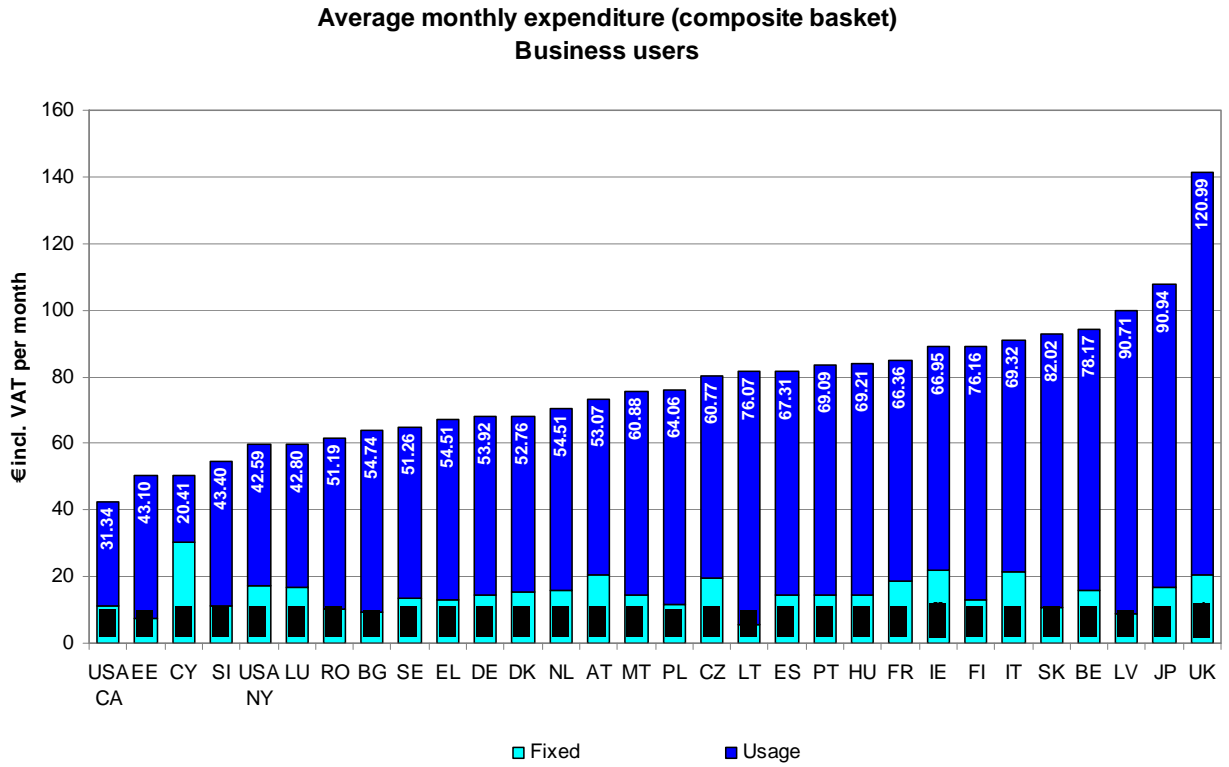


Figure 55



2.5.3.2 2006 OECD BASKETS

Figure 56

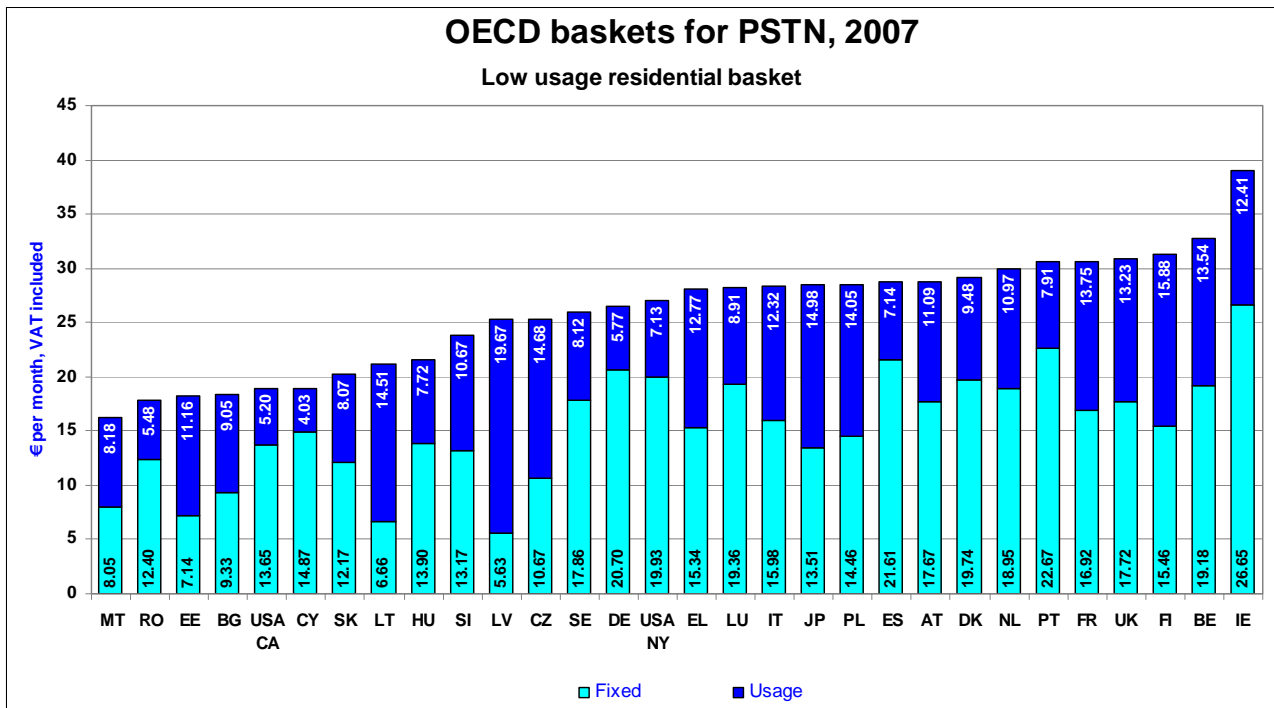


Figure 57

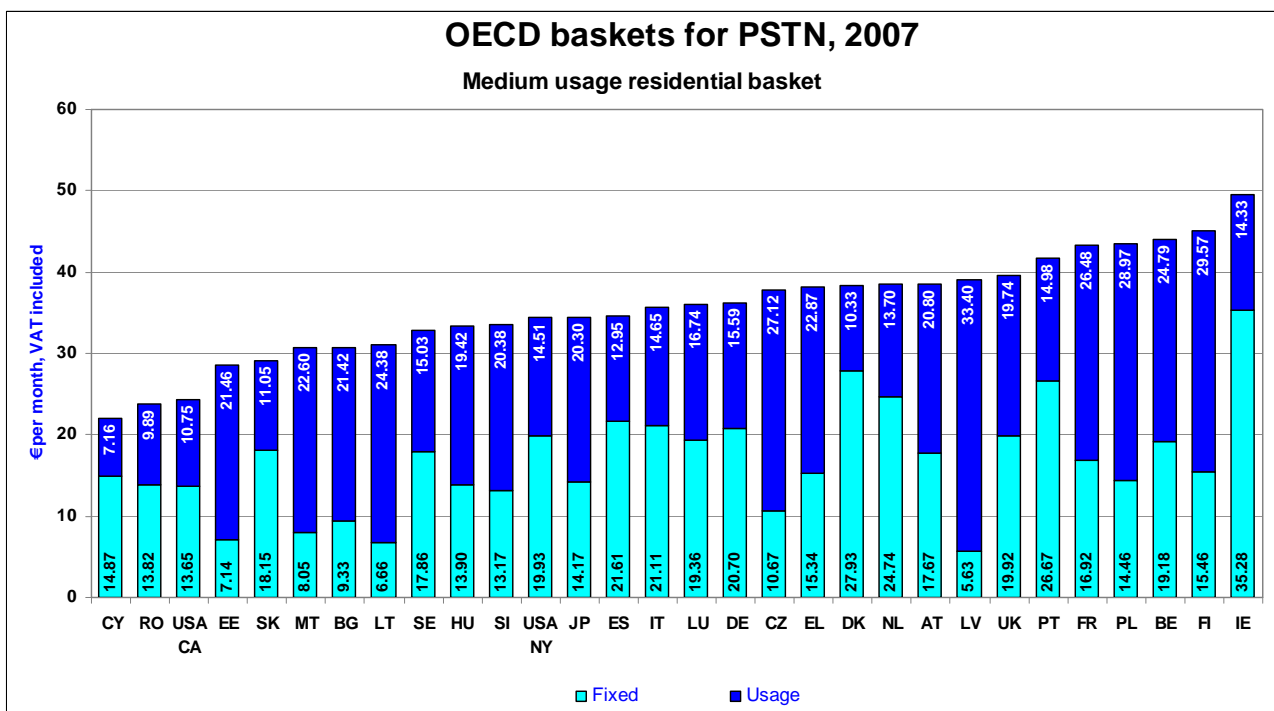


Figure 58

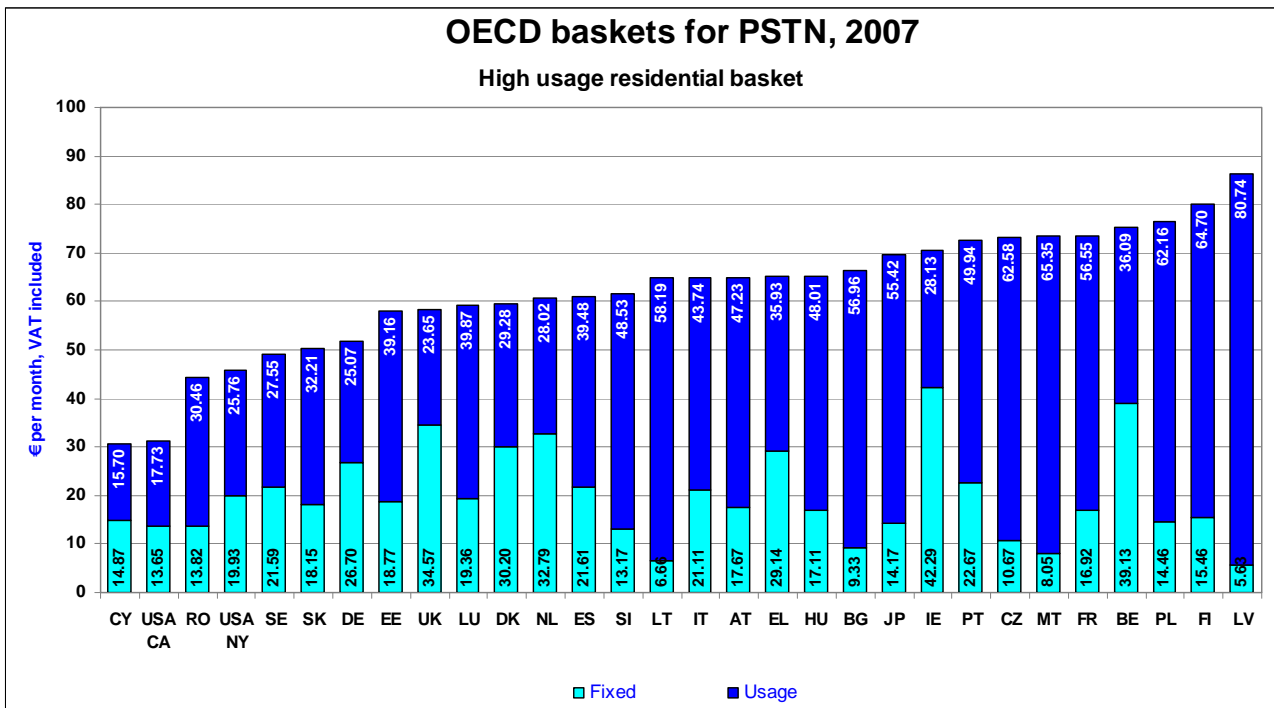


Figure 59

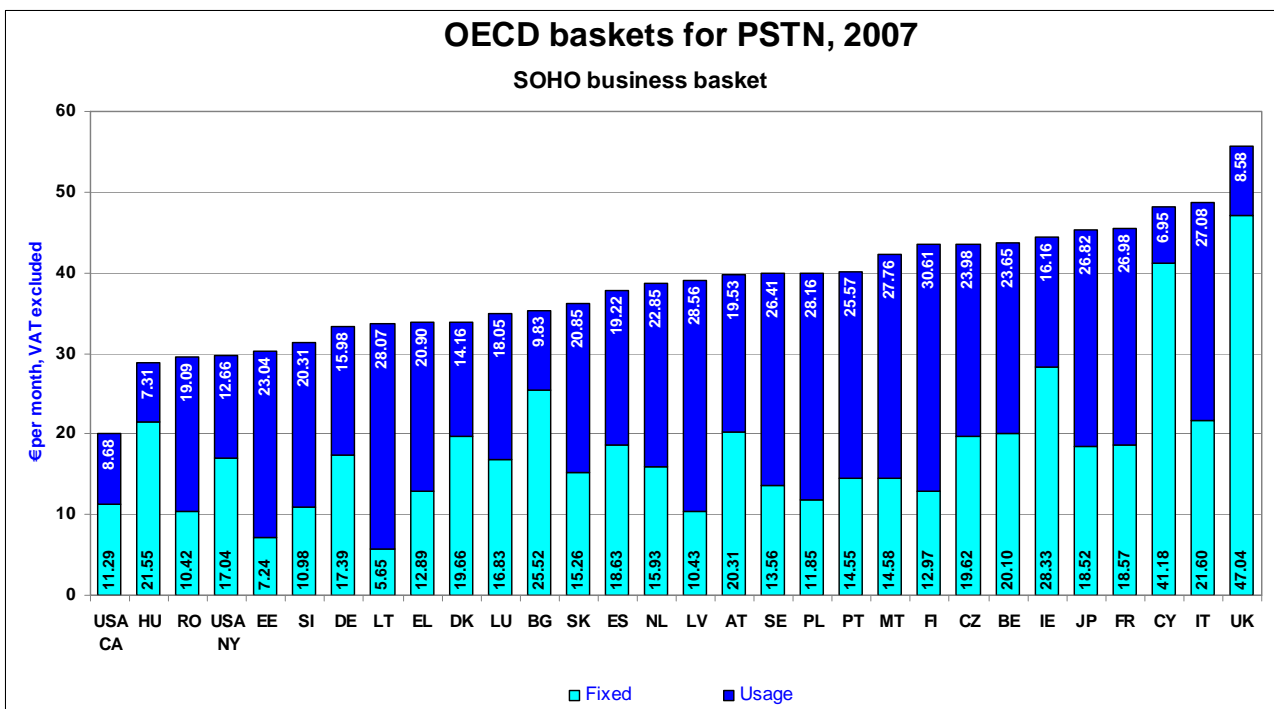
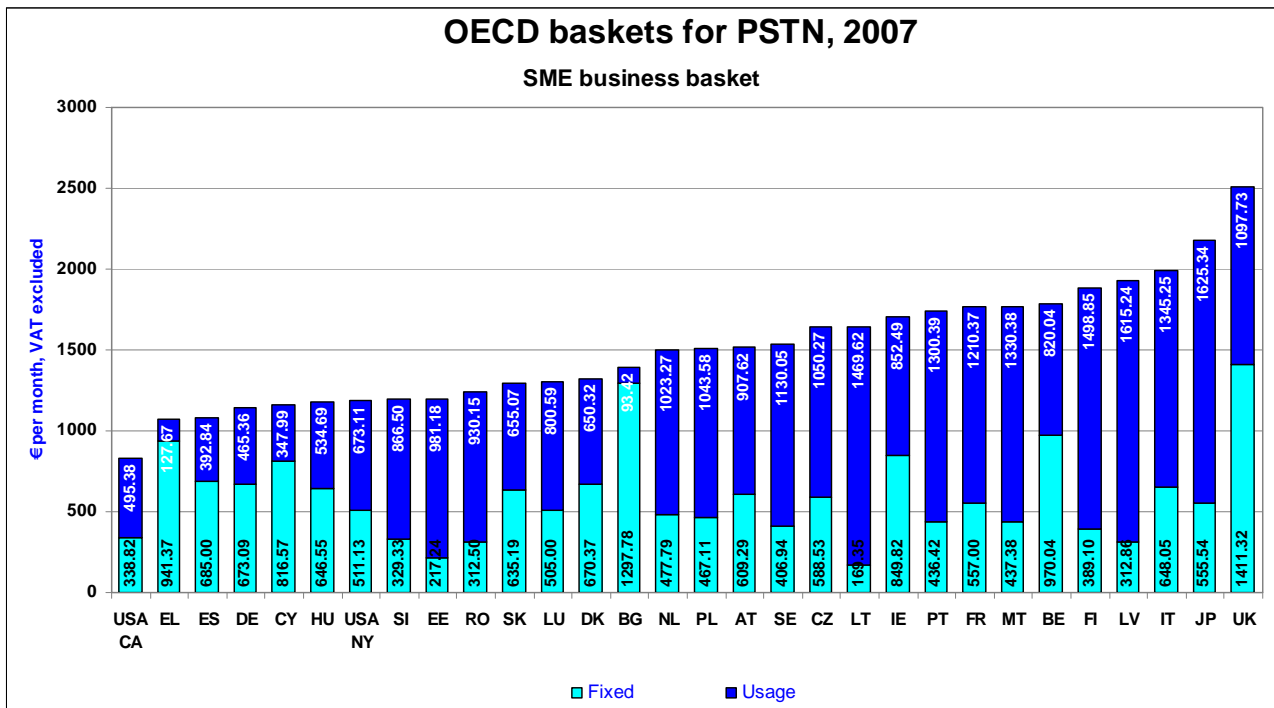


Figure 60



2.5.3.3 COMPARISON OF THE “STANDARD” PACKAGE WITH THE “CHEAPEST” PACKAGE

Total cost for "standard" package is compared with the equivalent cost for the "cheapest" package.

As some operators do not clearly publish a range of discount package options, only standard package is included in such cases.

Figure 61

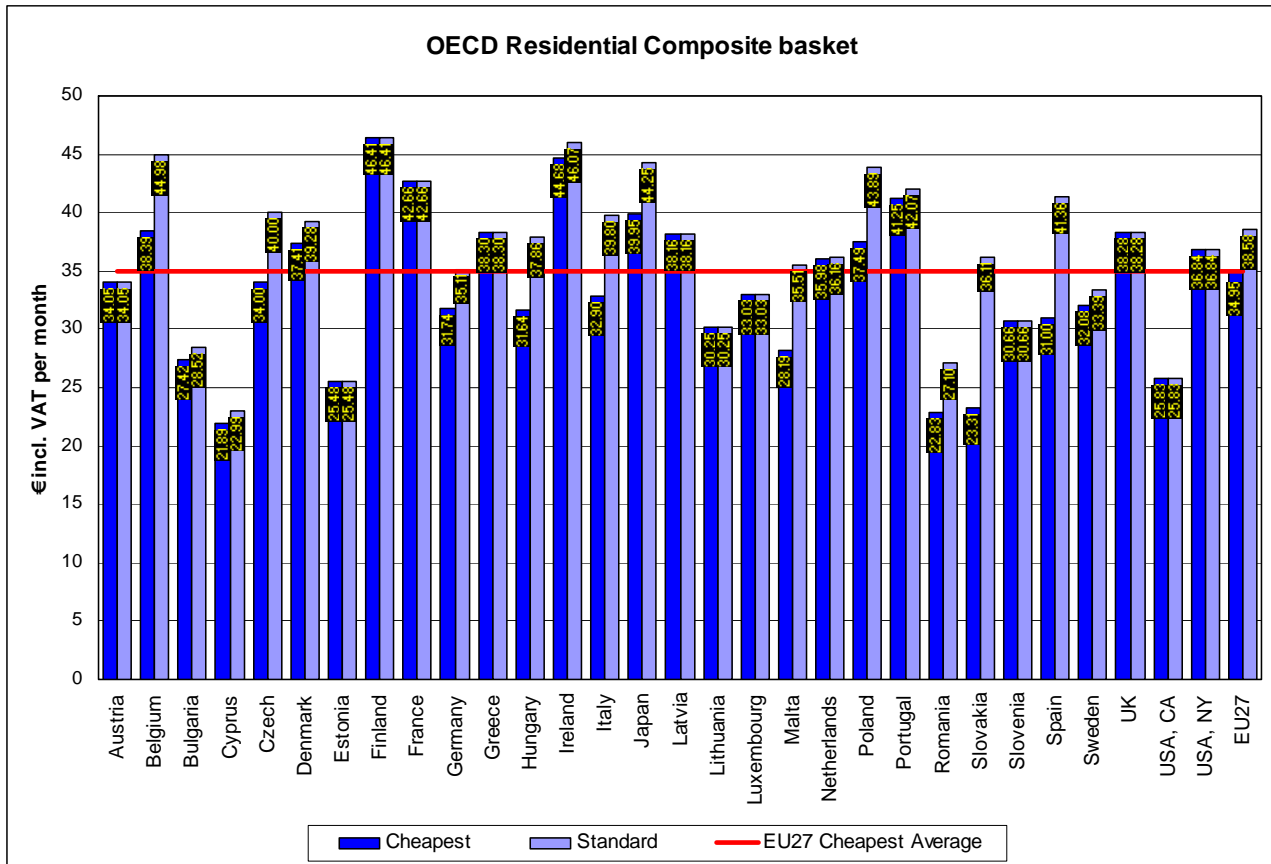
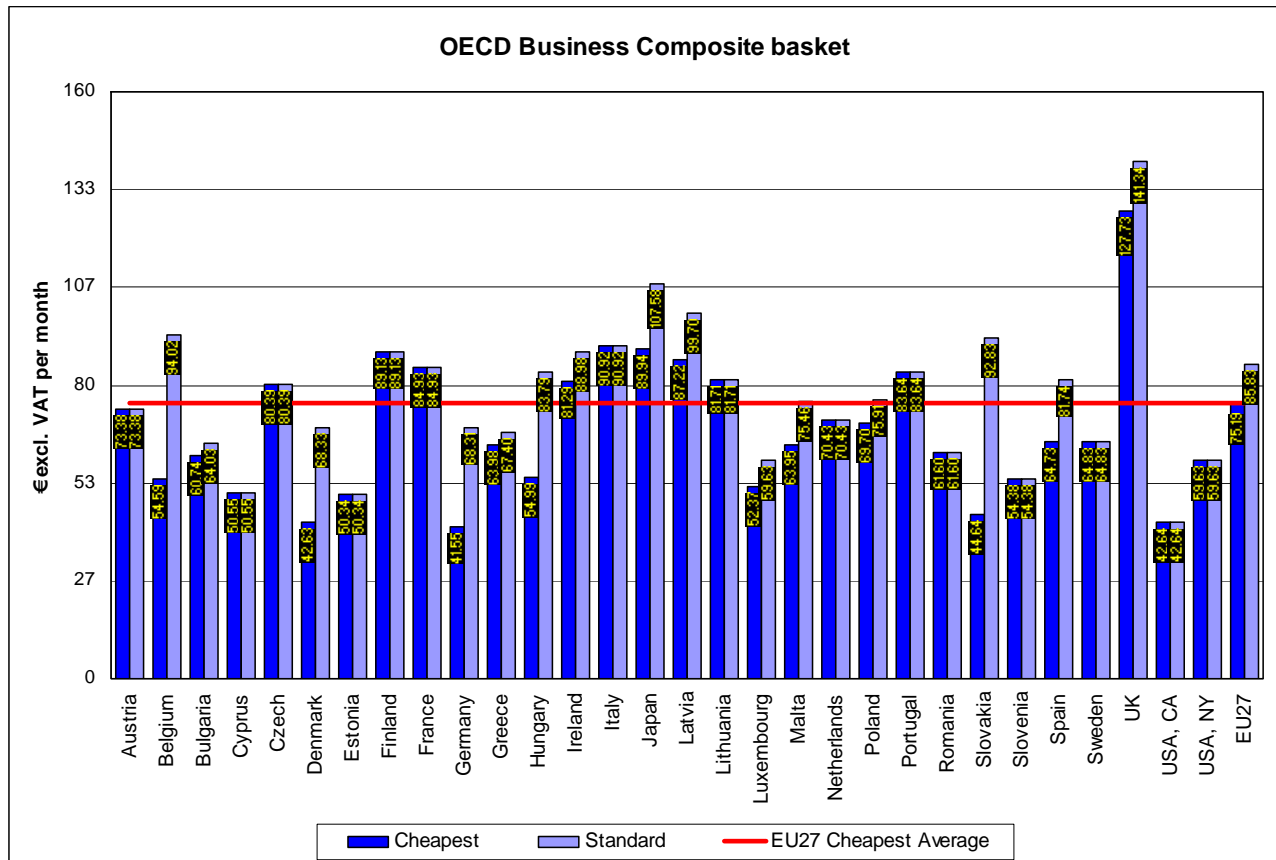


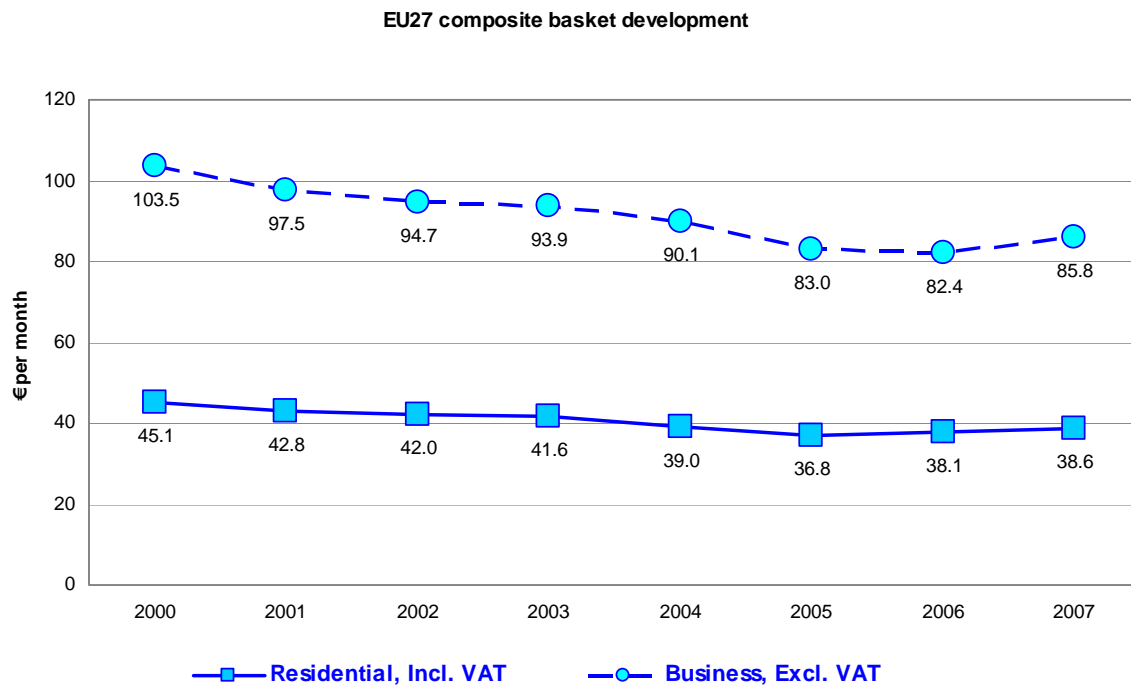


Figure 62



#### 2.5.4. TREND OF THE BASKET FOR FIXED NATIONAL CALLS (COMPOSITE BASKET)

Figure 63



#### 2.5.5. Incumbent operator price for an average fixed international call (international call basket)

The basket of international calls for each country provides an estimate of the average cost of an international call.

For the basket comparison of international PSTN call charges, the OECD traffic weight basket methodology is used. The basket calculates an average charge for calls to all OECD destination countries.

The residential basket includes VAT. Call charges are weighted between peak and off-peak hours: 25% for peak hours and 75% for off-peak hours. The business basket excludes VAT. Call charges are weighted 75% for peak hours and 25% for off-peak hours. International call charges vary widely with the destination, and the basket results are

based on a weighted average call charge. Traffic weighting is used, as defined by the OECD for the destination weighting, as per the revision in 2000. This method applies a weight to each destination based on the traffic volumes reported on that route (ITU statistics).

All tariffs are standard prices from incumbent operators, and both these operators and new entrants may offer lower prices.

The EU average value is the average of the EU countries weighted according to the national population.

A full description of the methodology can be found at the end of this report.

Figure 64

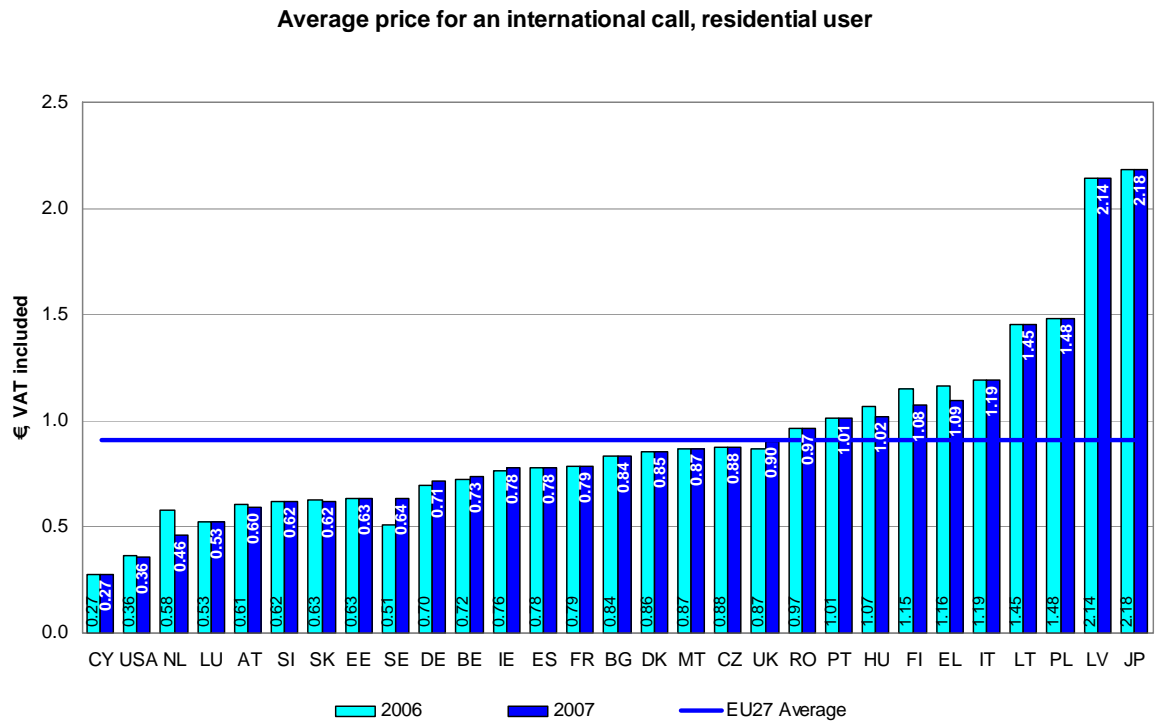


Figure 65

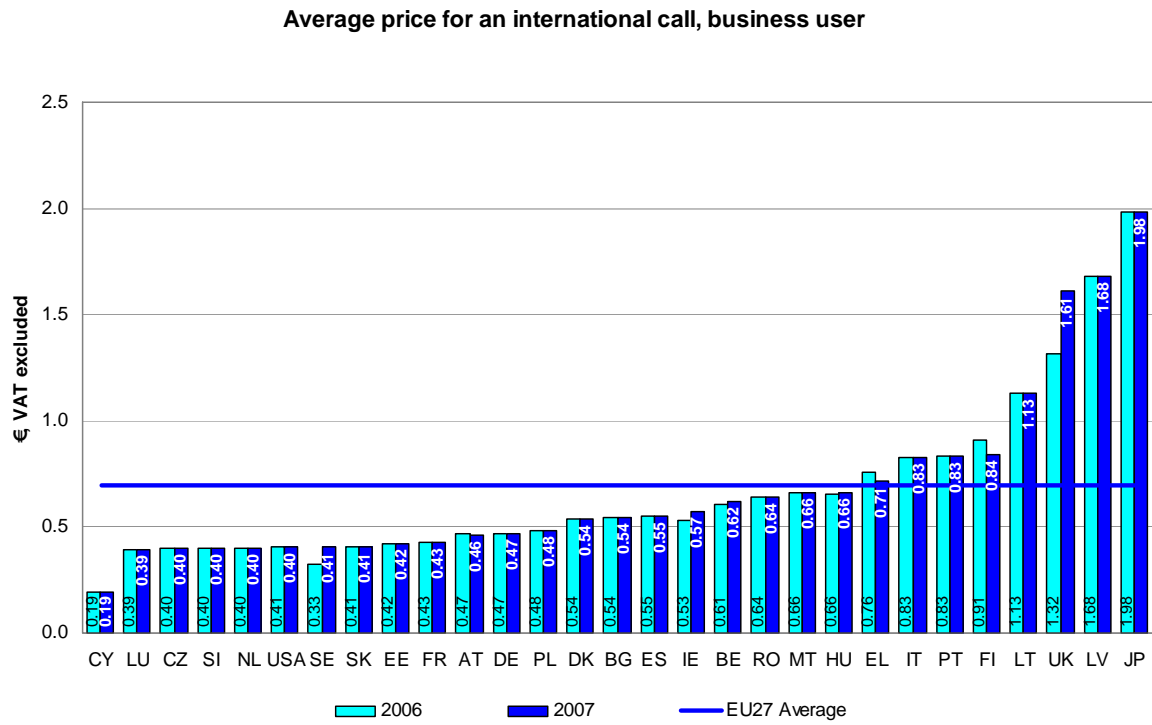
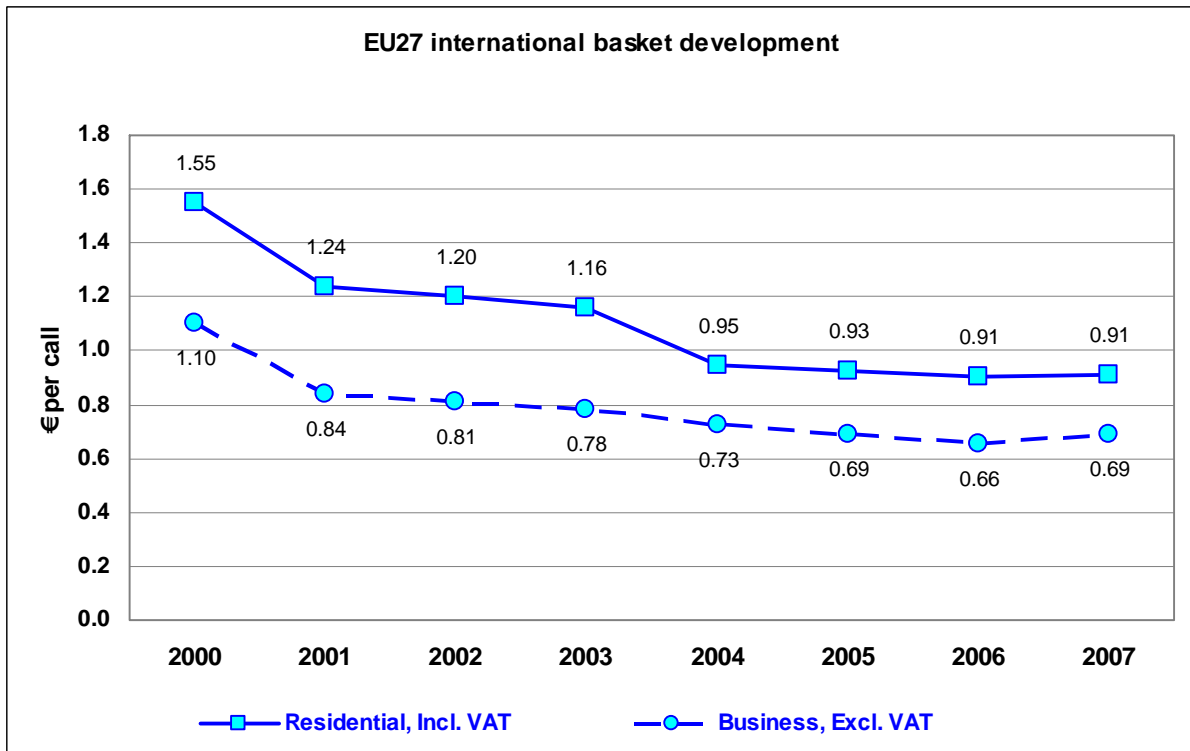


Figure 66



## 2.5.6. PRICE OF FIXED NATIONAL CALLS BY THE INCUMBENT OPERATOR

### 2.5.6.1 PRICES CHARGED BY THE INCUMBENT OPERATORS FOR INDIVIDUAL FIXED NATIONAL CALLS

This section shows the prices charged by the incumbent operators for individual fixed calls (the same call prices apply to business and residential users). For those countries where unit based charging is used, the cost of the amount of full units is calculated. Any call set-up charges, minimum charges and/or call specific duration allowances have been taken into account.

Prices refer to peak hours (weekdays 11:00 am) and are expressed in €cents including VAT. Except where otherwise specified, the figures refer to September 2007. Prices are indicated for three-minute and ten-minute calls over two distances: 3 km (equivalent to a local call) and 200 km (equivalent to a national call). In

several countries the tariff changes at exactly one of these distances: in these cases, the rates for the lower distance band are used.

The price of a three-minute call is more affected by the magnitude of the call set-up charge than the price of a ten-minute call.

Where different tariff packages exist, the basic, residential package is selected. Otherwise the standard tariff is used. No discount packages are taken into account.

The EU average value is the average of the EU countries weighted according to the national population.

Figure 67

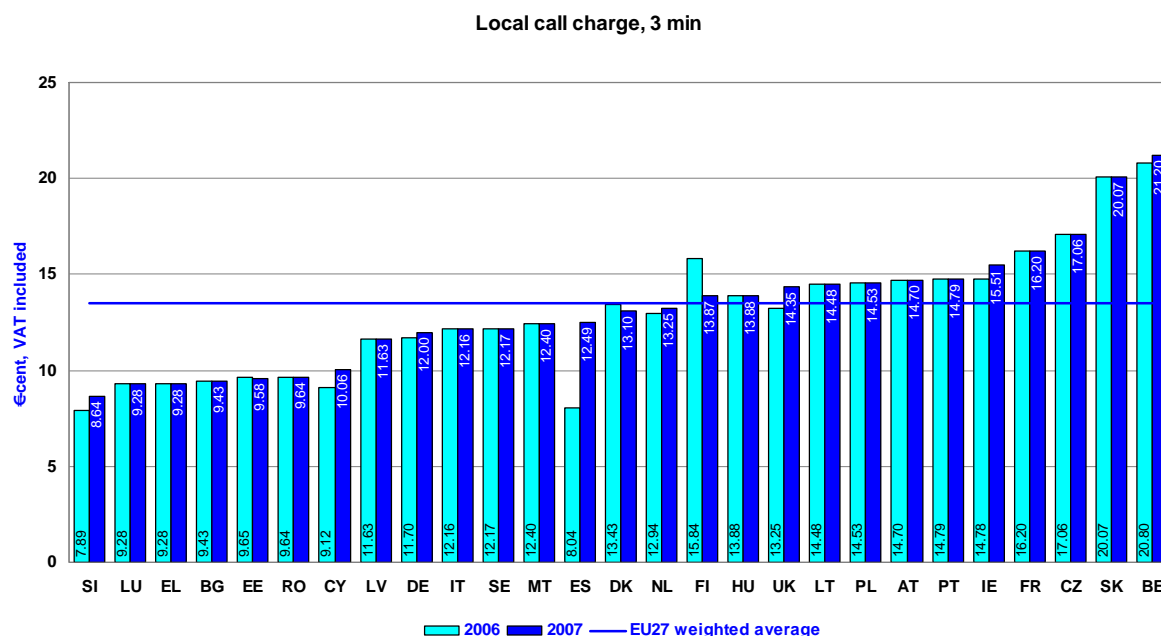


Figure 68

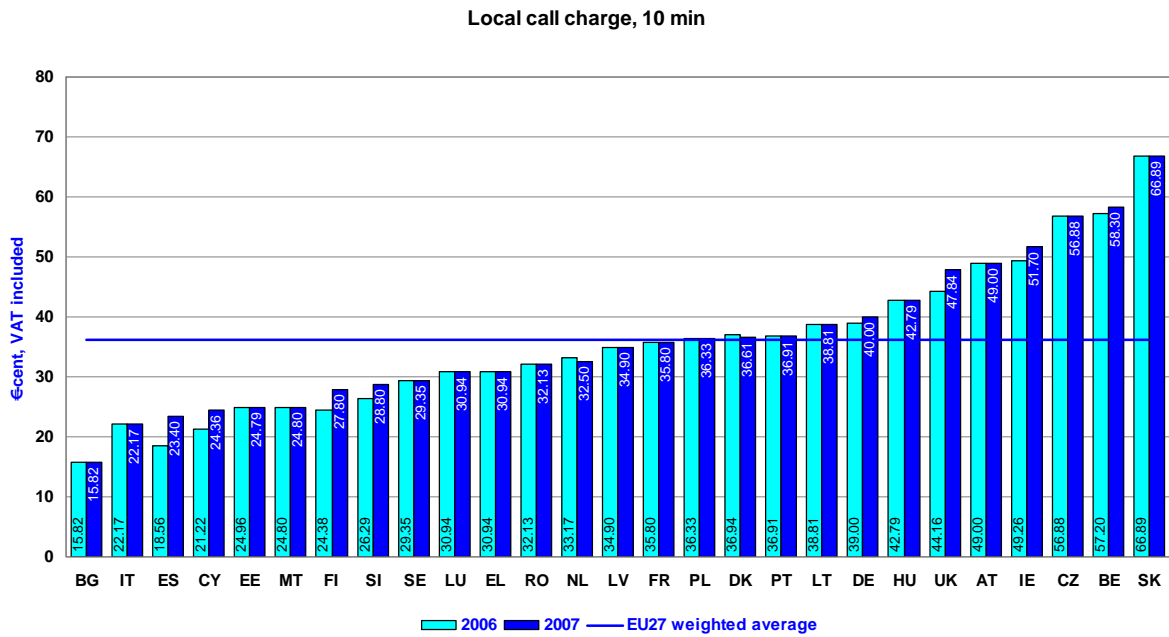


Figure 69

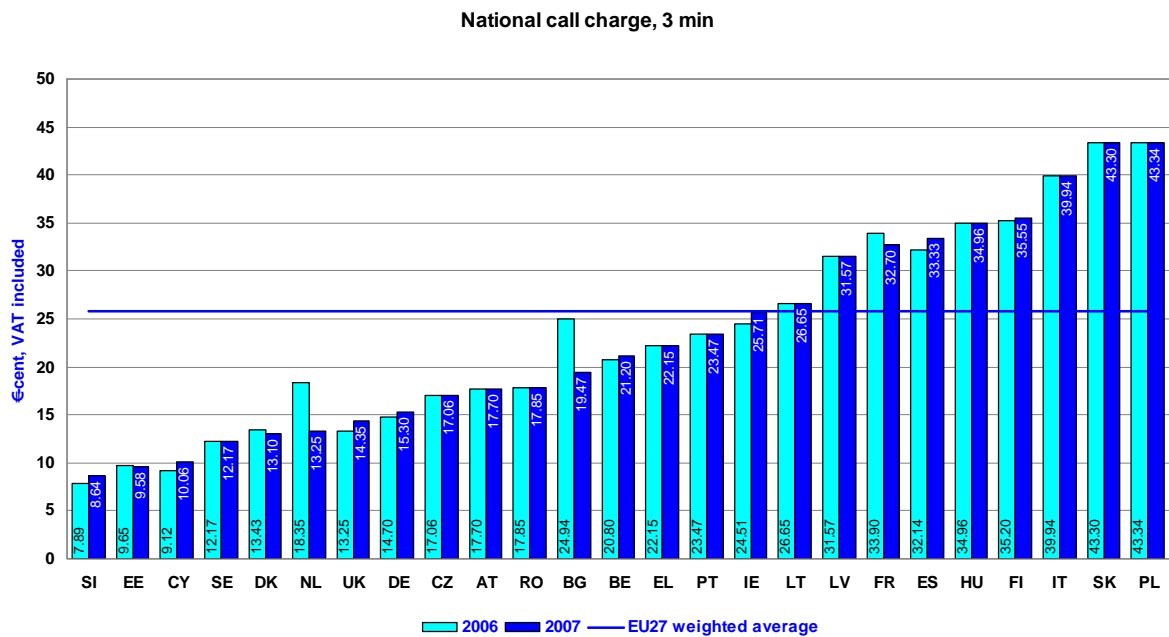


Figure 70

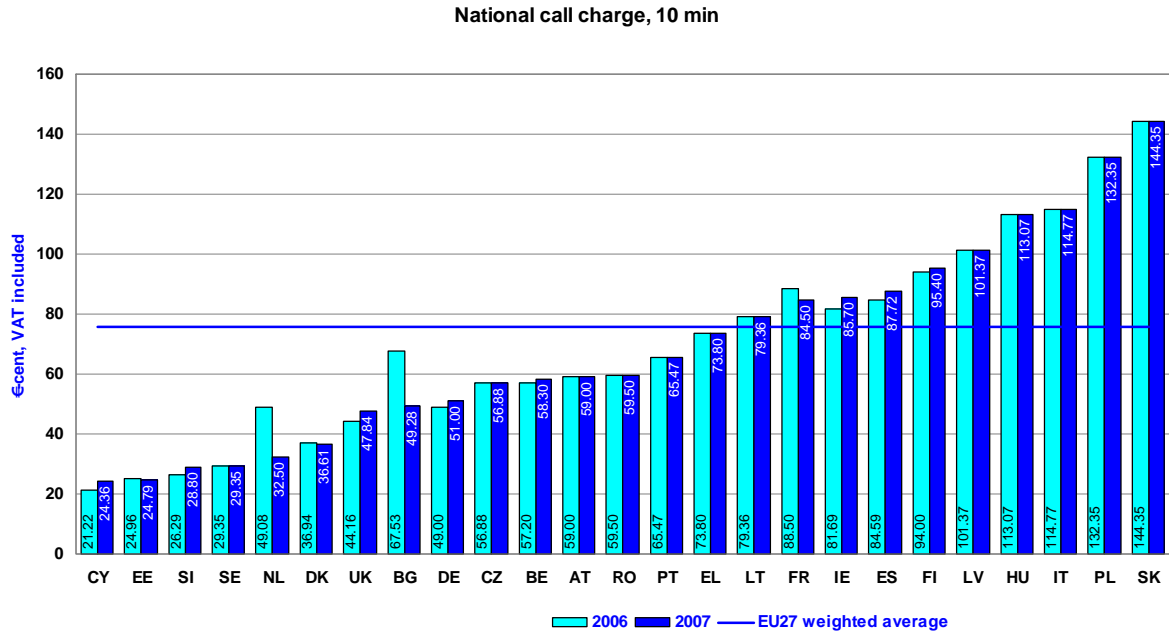


Figure 71

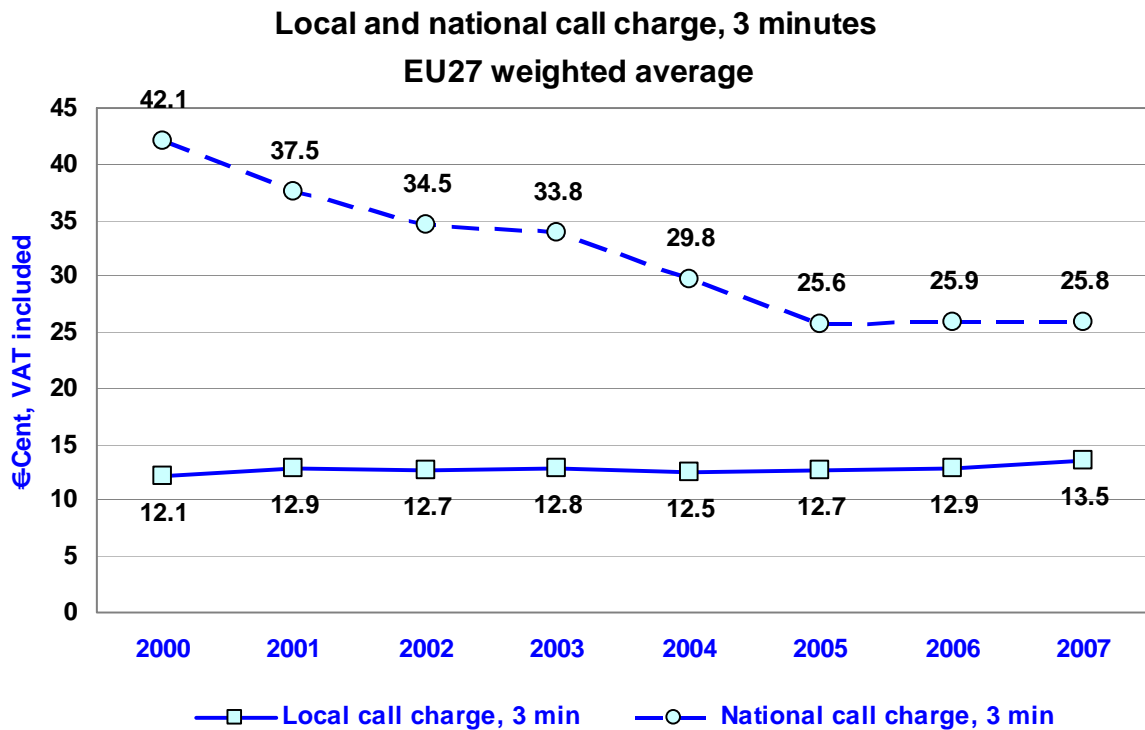
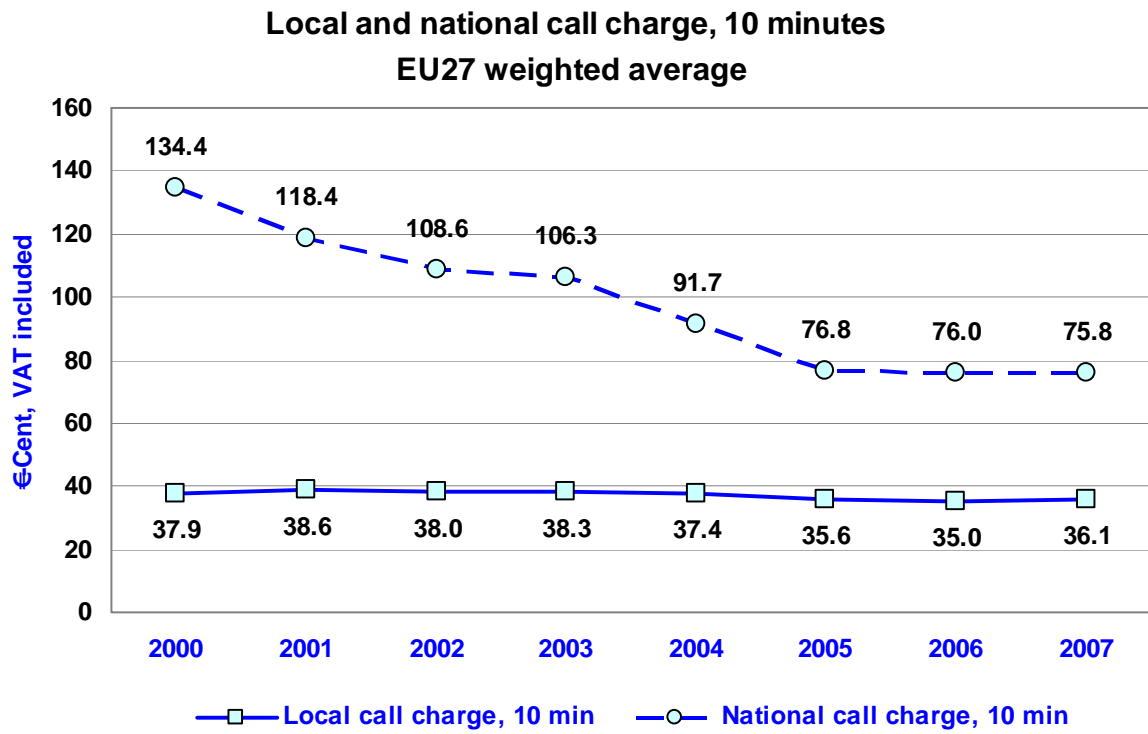


Figure 72





### 2.5.7. PRICE OF FIXED NATIONAL CALLS BY ALTERNATIVE OPERATORS

This section compares the prices charged for public voice telephony services by the incumbent operators and by the largest competitor in each Member State. The tariff packages selected will impact on this comparison, although care has been taken to ensure reasonable comparability.

In this report the following second largest operators have been covered for the year 2007. In some cases there has been a change of "second operator" from last year, and these are marked with an \*.

	Second largest	Competing service type
Belgium	Telenet	PSTN / IP
Bulgaria	Orbitel	IP
Czech Rep.	Radiokomunikace	PSTN / IP
Denmark	Tele2	PSTN
Germany	Arcor	PSTN
Estonia	Starman *	IP
Greece	Tellas *	PSTN
Spain	Ono	Cable
France	NeufCegetel	PSTN
Ireland	BT Ireland	PSTN
Italy	Wind	PSTN
Cyprus	CallSat	?
Latvia	Telecom Baltija *	PSTN / IP

Lithuania	Lietuvos Gelezinkeliai	PSTN
Luxembourg	Tele2	PSTN
Hungary	Tele2	PSTN
Malta	---	---
Netherlands	Pretium *	PSTN
Austria	Tele2UTA	PSTN
Poland	Tele2 *	PSTN
Portugal	Novis *	PSTN
Romania	RCS&RDS	PSTN
Slovakia	GTS Nextra	PSTN / IP
Slovenia	T-2 *	IP
Finland	Elisa	PSTN
Sweden	Tele2	PSTN
UK	Virgin Media *	PSTN / IP

Figure 73

### 3 min Local calls, incumbent and competitor's price

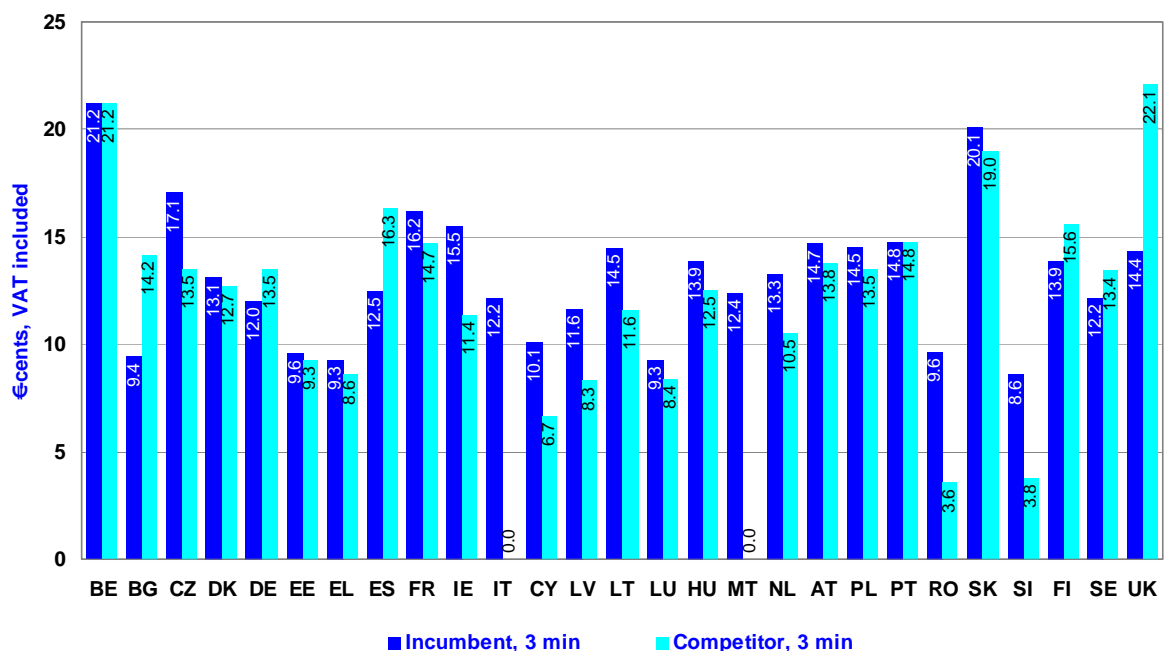


Figure 74

10 min Local calls, incumbent and competitor's price

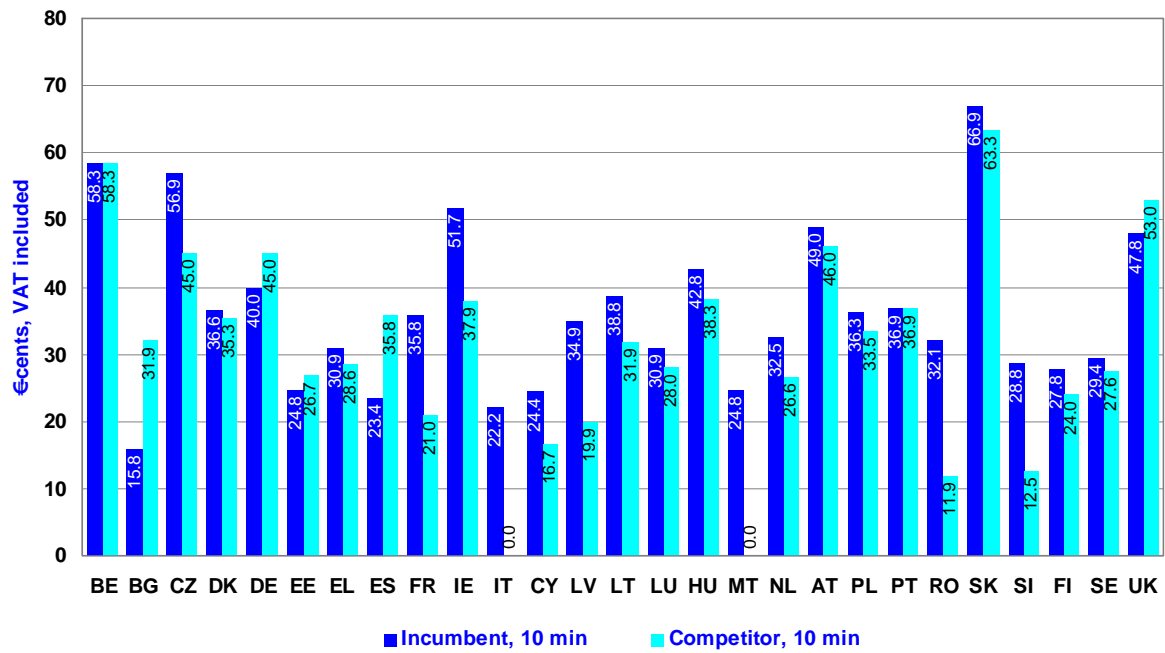


Figure 75

3 min National calls, incumbent and competitor's price

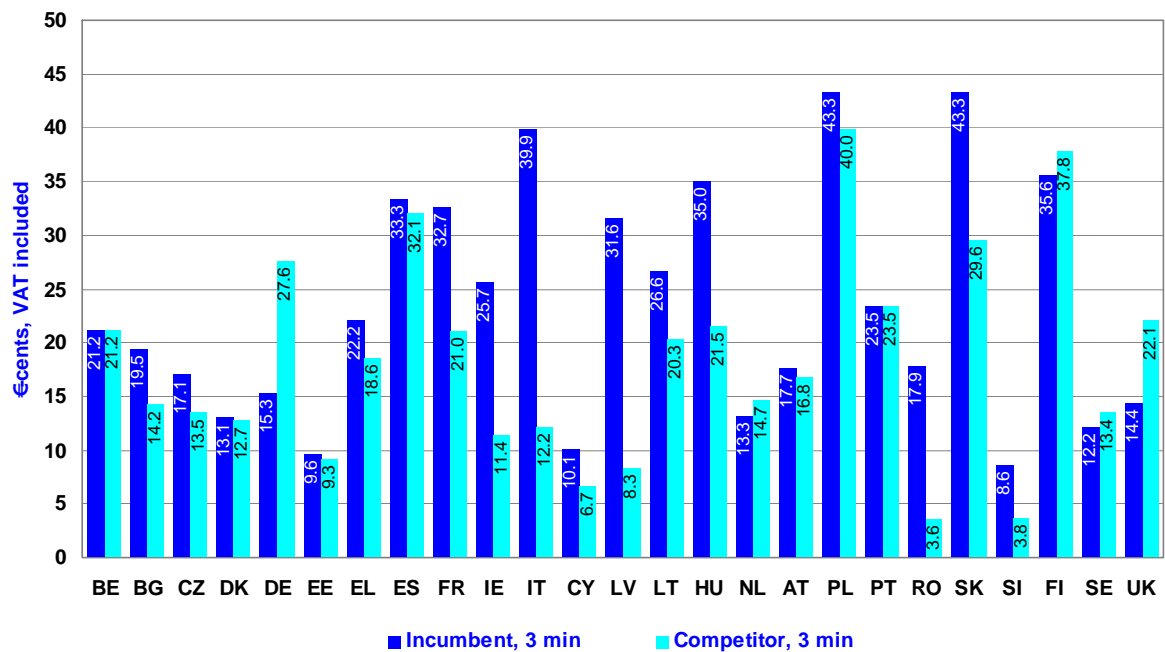
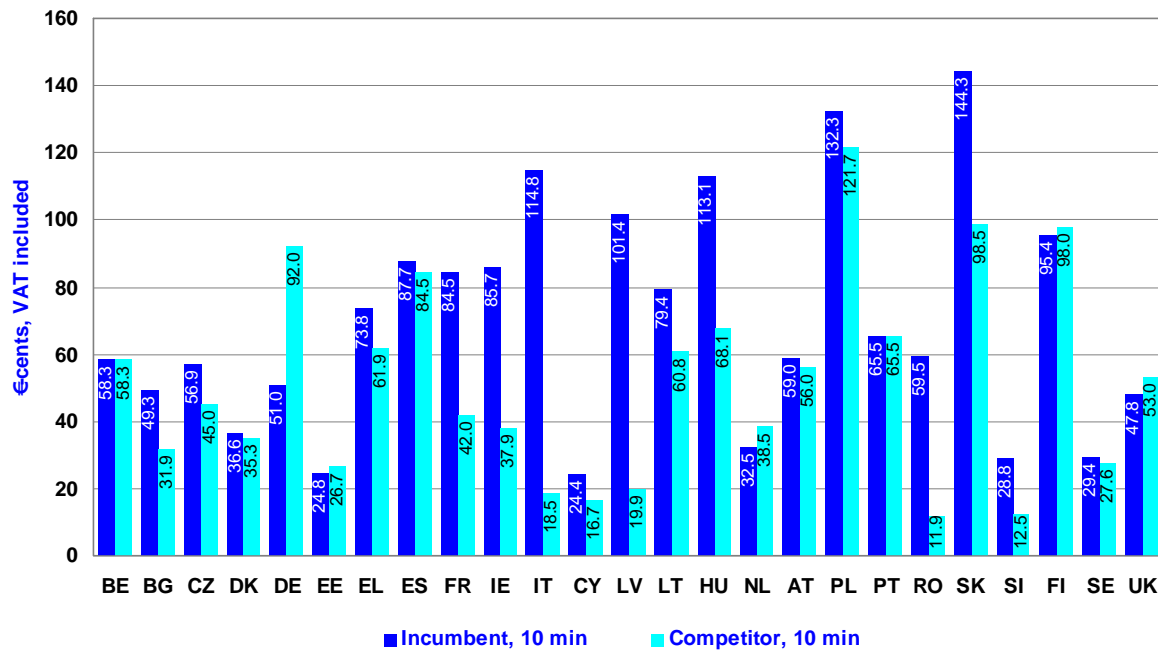


Figure 76

## 10 min National calls, incumbent and competitor's price



### 2.5.8. INCUMBENT OPERATOR PRICE OF CALLS TO EU, JAPAN, USA

The following charts show the prices of a 10-minute international call (including VAT) during peak hours (weekday 11:00 am) to four different destinations: Near EU country, Distant EU country, USA and Japan. Figures are expressed in €

including VAT, and they refer to the European incumbent operators and the EU weighted average. The table below summarizes the definition of near and distant EU destination countries.

From:	Near EU	Far EU
BE	FR	EL
BU	EL	PT
CZ	DE	FI
DK	SE	EL
DE	FR	EL
EE	FI	EL
EL	IT	DK
ES	PT	DK
FR	BE	EL
IE	UK	EL
IT	EL	DK
CY	EL	DK
LV	SE	EL
LT	SE	EL
LU	DE	EL
HU	AT	FI
MT	IT	FI
NL	DE	EL
AT	DE	EL
PL	DE	EL
PT	ES	DK
RO	HU	PT
SK	CZ	FI
SI	AT	FI
FI	SE	EL
SE	DK	EL
UK	FR	EL

Figure 77

10 min. call to near EU country

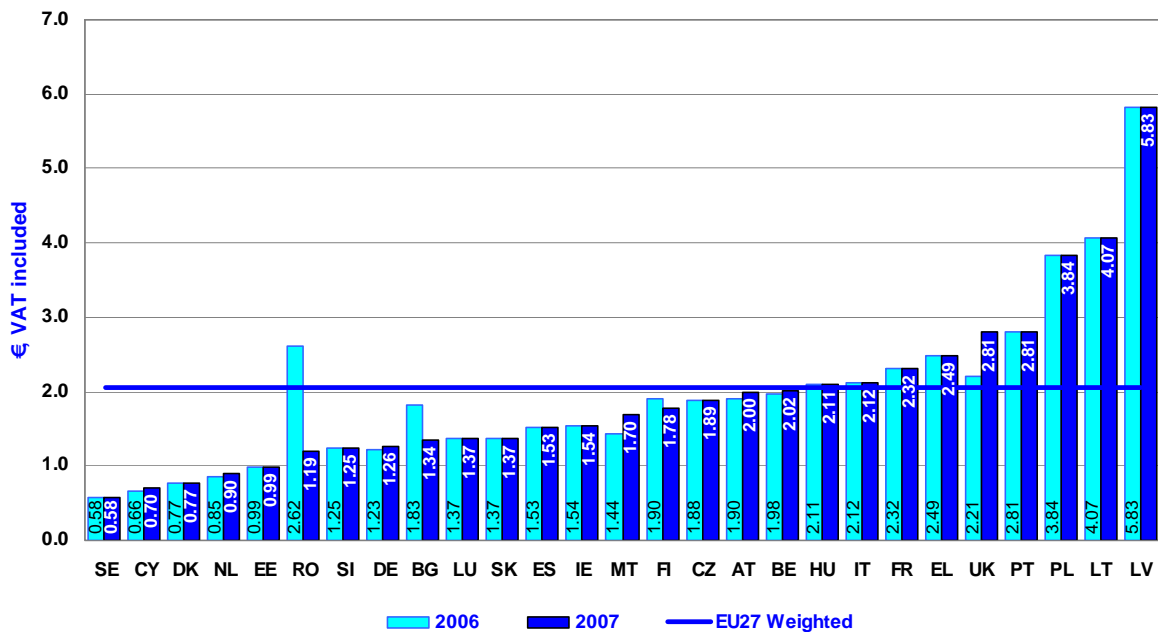


Figure 78

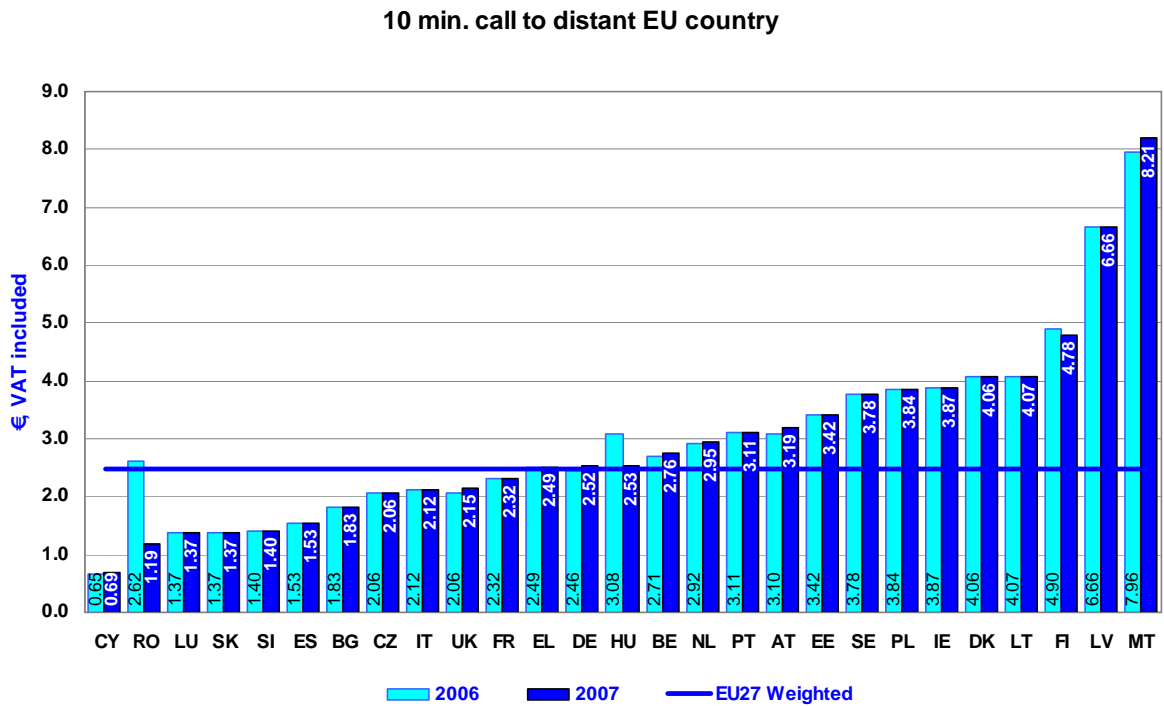


Figure 79

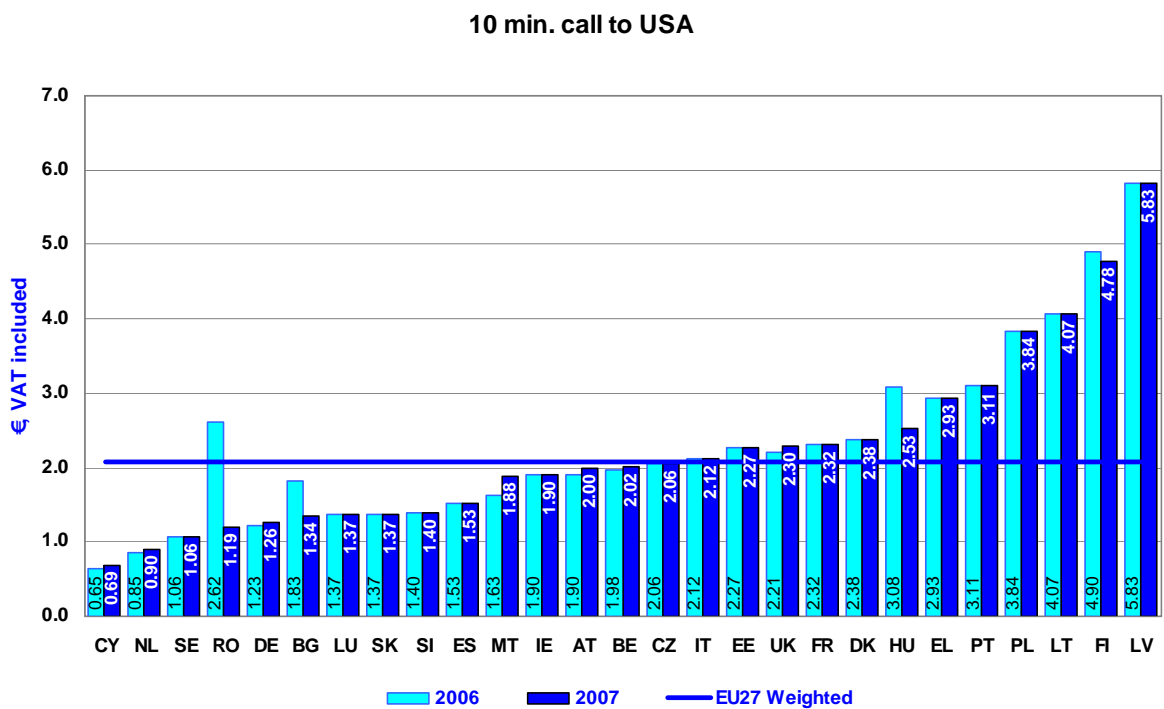
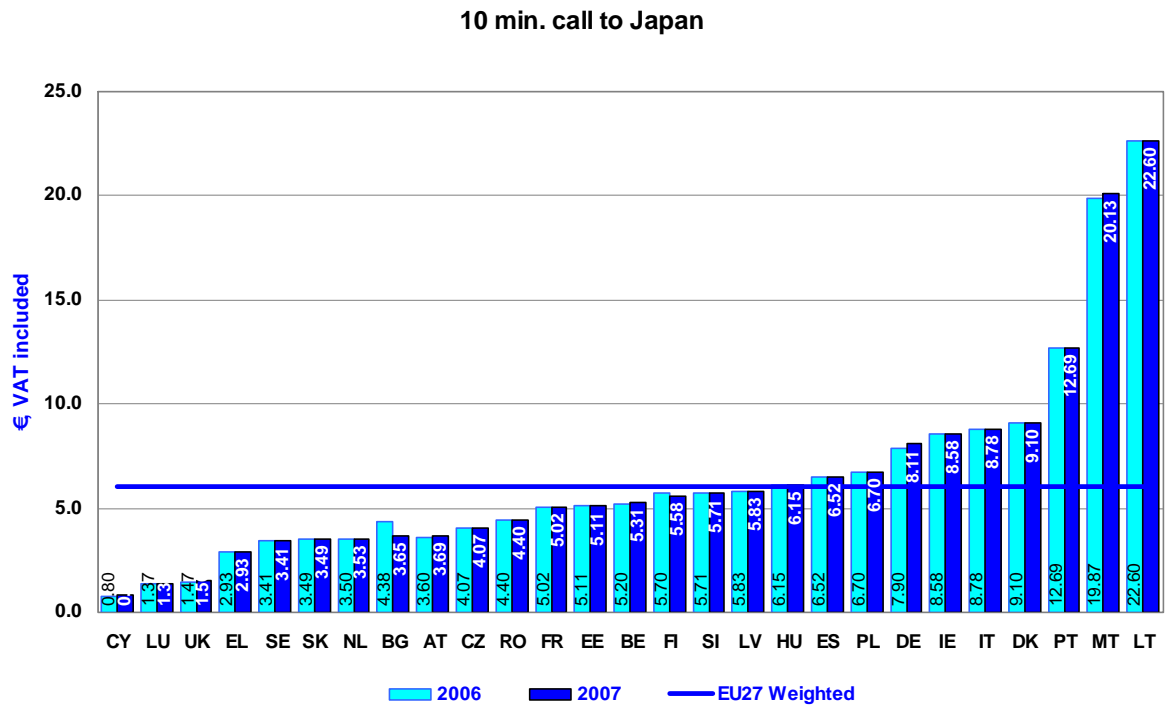


Figure 80



### 2.5.9. ALTERNATIVE OPERATORS' PRICE FOR FIXED INTERNATIONAL CALLS

The equivalent prices for competitor providers in the EU countries are shown in the charts below. One competitor per country has been analyzed. The prices are shown for a 10 minute call, at peak time weekdays. Prices include VAT and are applicable for September 2007.

Figure 81

10 min. call to near EU country, incumbent and competitor's price

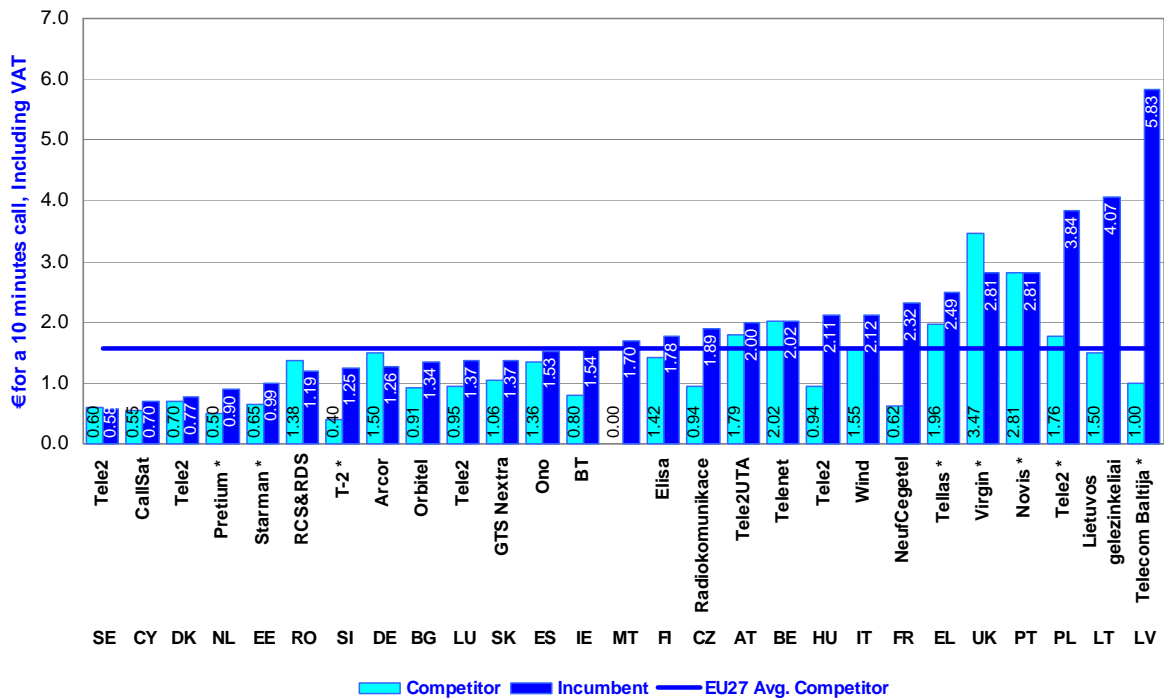


Figure 82

10 min. call to distant EU country, incumbent and competitor's price

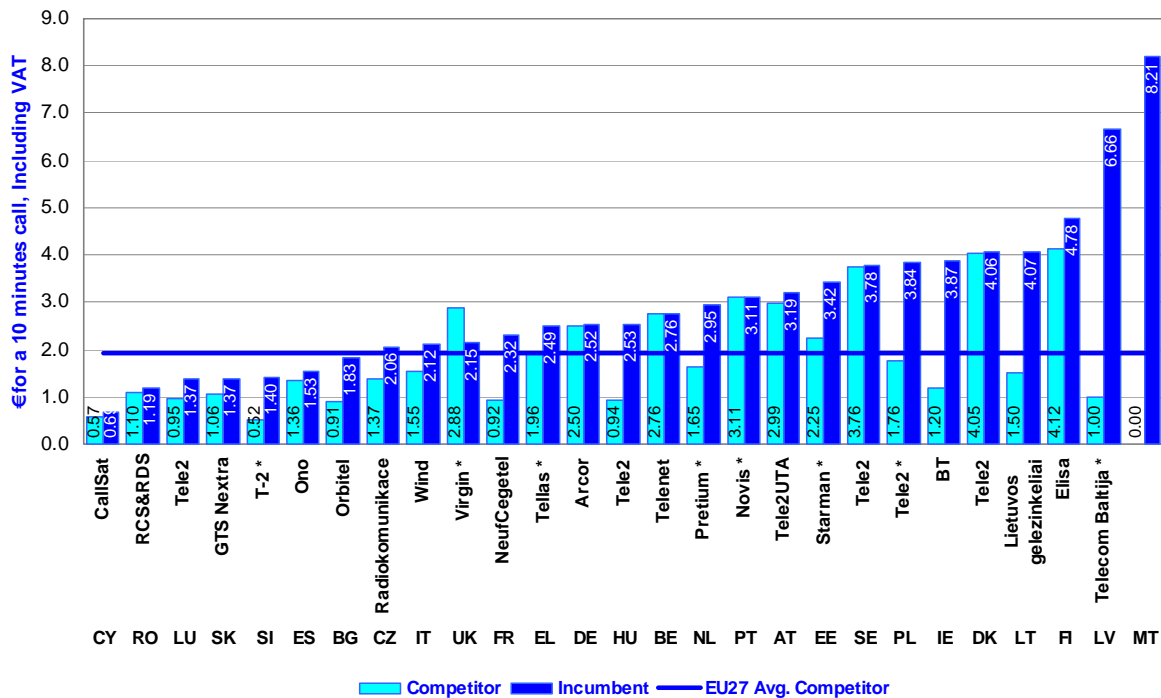


Figure 83

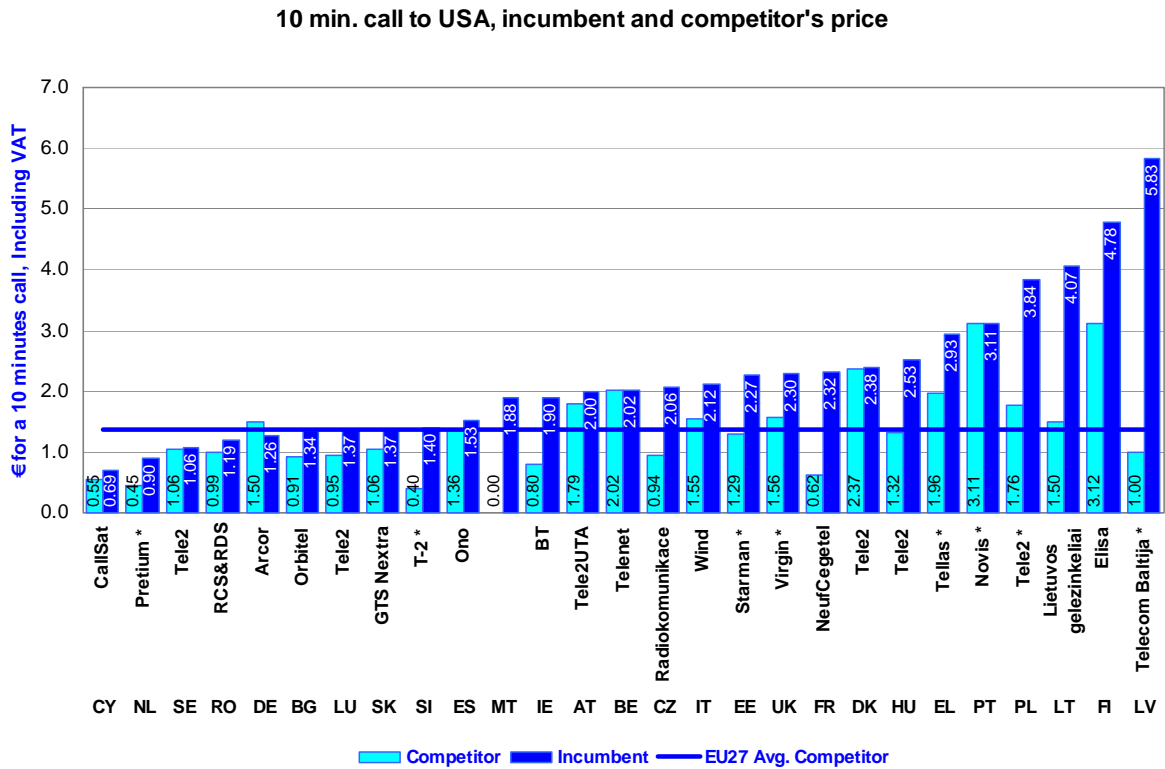
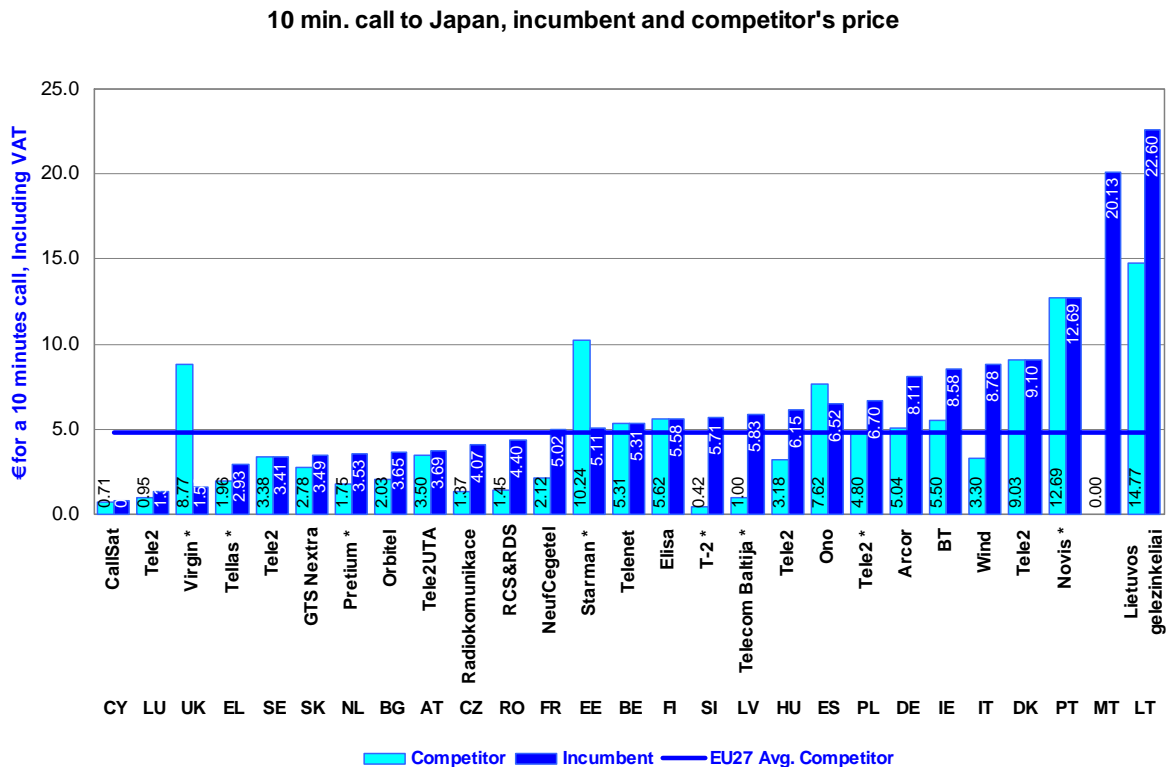


Figure 84





## 2.6. CALL TERMINATION ON INCUMBENT'S FIXED NETWORK

This section analyses the interconnection charges for call termination on the incumbent's fixed network. The figures show the charges per minute based on the first three minutes of a call at peak-time, VAT excluded.

The figures may have been approved by the NRA or simply agreed between operators, where the legal framework does not require NRA approval.

The following chart shows the EU weighted average for the interconnection charges since 2005 for local level, single and double transit. The exchange rates for 2007 have been applied to the years 2005-2007 for the non euro-zone countries. Compared to October 2006, the EU weighted average charge for call termination on the incumbent fixed networks, is still decreasing (for single transit and for double transit (-0.13 €cent)) however it has remained stable for local level. When comparing the categories of fixed interconnection fees, double transit represent in 2007 about twice the price of local level. Looking at the evolution of the interconnection charges on a per-country basis the following comments can be made:

- The lowest local level interconnection fee is to be found in the United Kingdom (0.11€cent), and Cyprus (0.31€cent). Finland has the second highest interconnection fee for local and the highest fee for single transit at 1.92 €cents. Lithuania has the highest fee for local and double transit, respectively at 2.61 and 3.5 € cents, however the data for single transit in this country is not available.
- Sweden and the United Kingdom have the lowest single transit interconnection fees, respectively 0.12 and 0.23 €cents.
- Romania has lower interconnection charges at all levels than Bulgaria.
- The downward trend continues in Estonia (-60% for local level and -46% for single transit), Slovakia (-69% for local level and +42% for single transit), Malta (-48% for all levels)

Figure 85

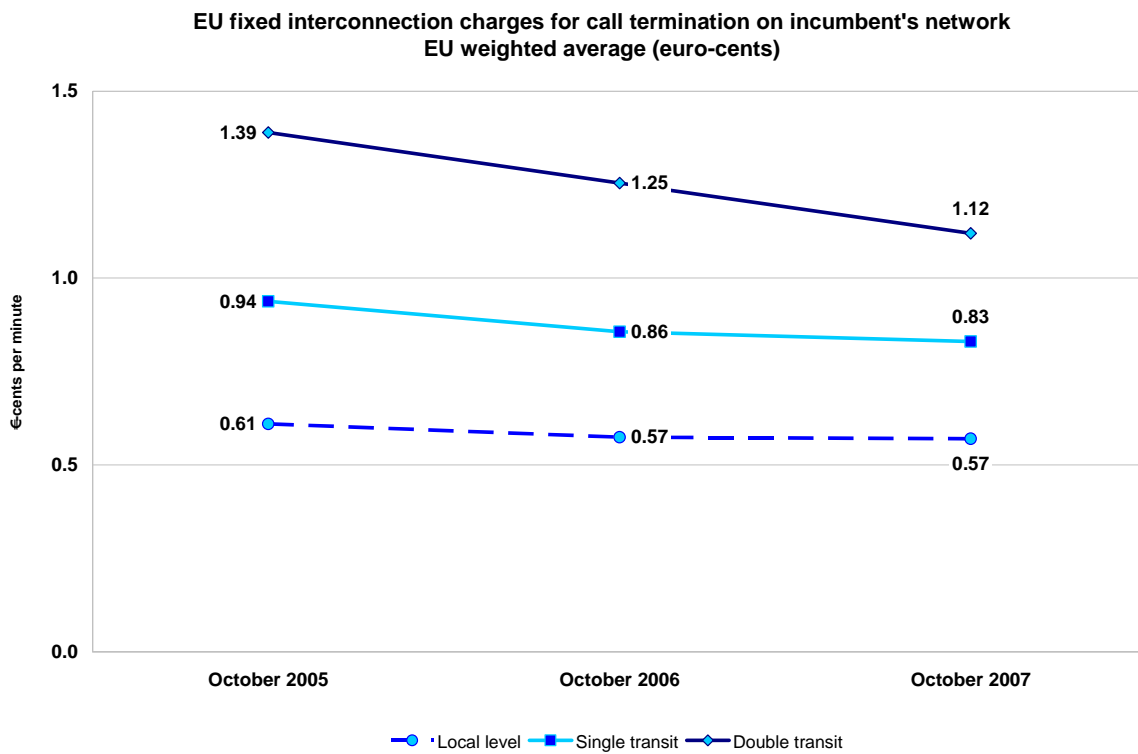
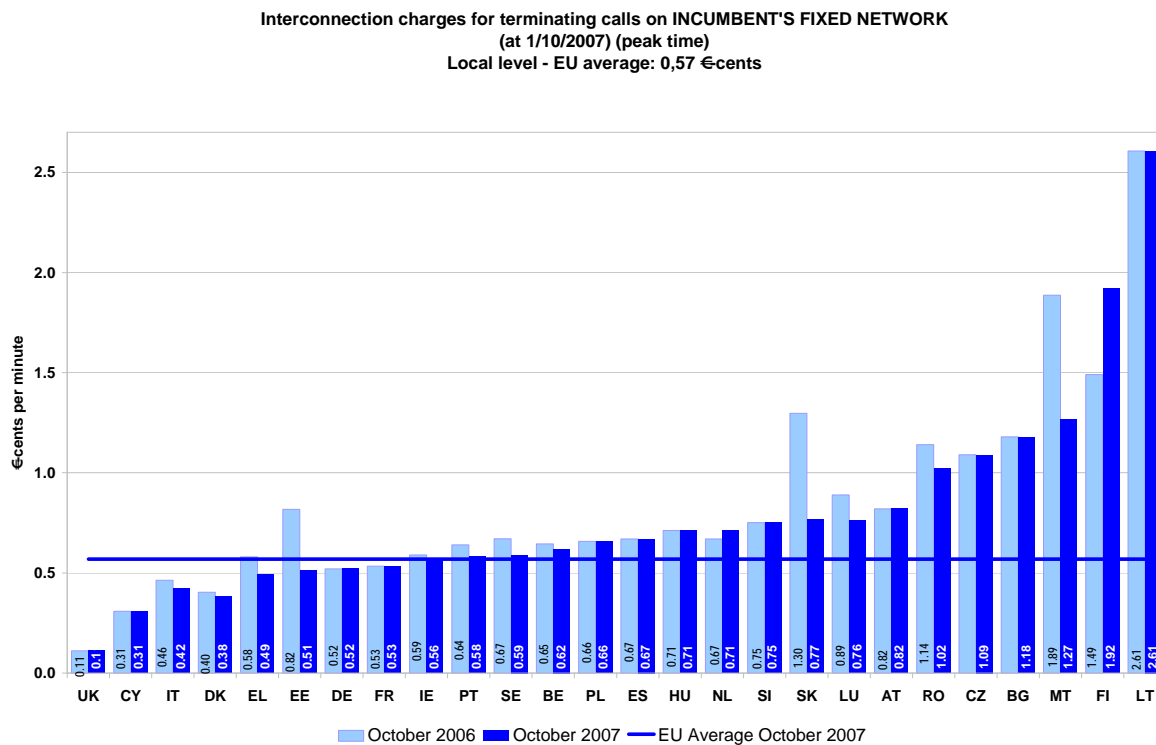


Figure 86



Bulgaria: No local level is applied for fixed-to-fixed interconnection of the incumbent operator and the alternative operators. The fixed-to-fixed rates of the incumbent for ‘metro segment’ are stated here according to the interconnection agreements in force. ‘Metro Segment’, as defined in the BTC Reference Interconnect Offer, is ‘used for calls through one regional point of interconnection to subscriber, served by a local exchange, connected to the same regional point of interconnection in the same city’. The prices indicated here are in compliance with the last RIO.

Czech Republic: 0.30 CZK Peak/ 0.15 CZK Off peak

Denmark: The data reported is from 30th of June 2007

Germany: 0.0052 €Peak /0.0036 €Off Peak

Luxembourg: Based on the small distances in Luxembourg

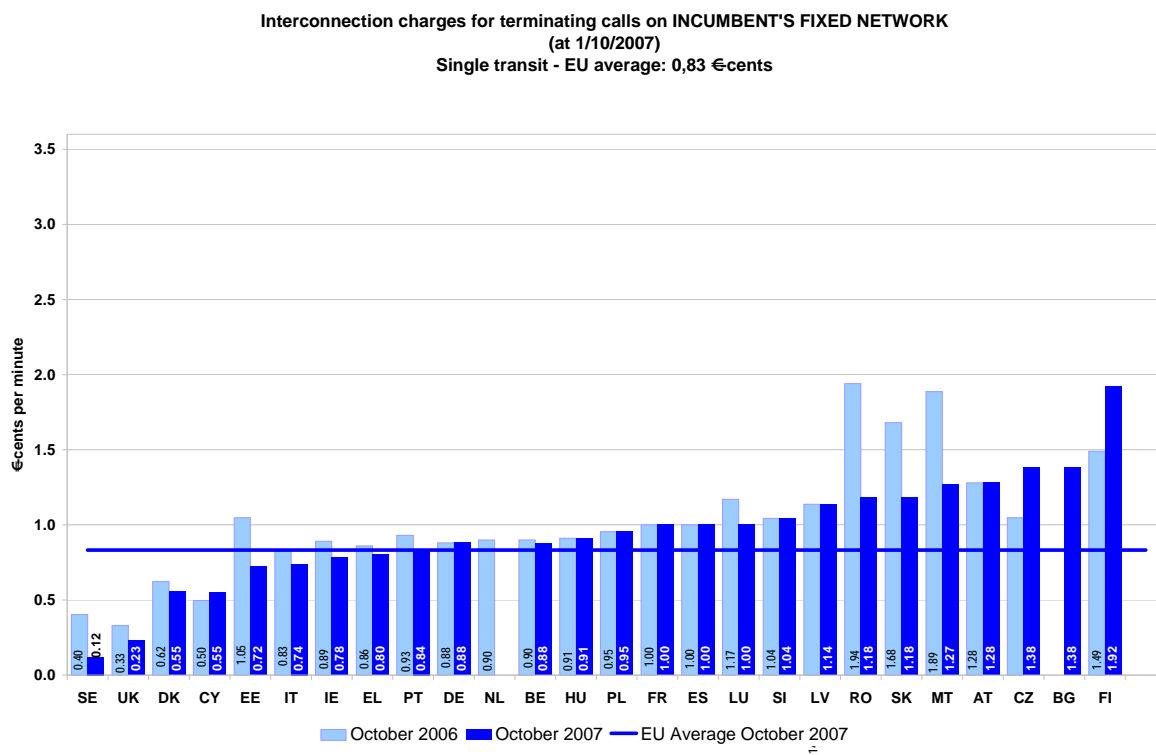
Netherlands: These charges are one operator rates for local calls;

Romania: the same charges are applied to all mobile operators;

Slovakia: Prices set according to TO's decision, valid from 27<sup>th</sup> October 2007.

Finland: Based on the average of 38 SMP-operators call termination charges. Termination charges varies from 1.5 €cent/min to 2.44 €cent/min Average is 1.92 €cent/min and median charge is 1.98 €cent/min. Price comparison of fixed call termination can be found at FICORA's WebPages at: <http://www.ficora.fi/en/index/tutkimukset/tutkimukset/tukkuhintavertailut.html>

Figure 87

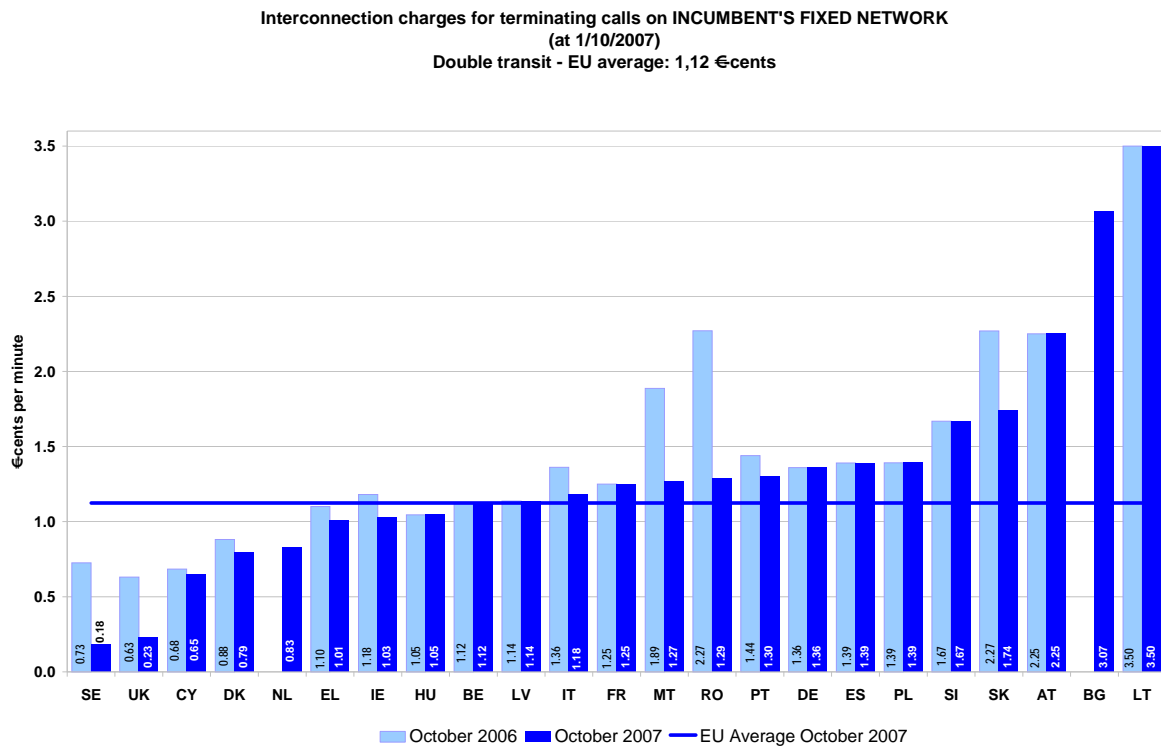


Lithuania: Only local and national level IC. National IC includes single and double transit.

Netherlands: Not regulated

Finland: Based on the average of 38 SMP-operators call termination charges. Termination charges varies from 1.5 €cent/min to 2.44 €cent/min Average is 1.92 €cent/min and median charge is 1.98 €cent/min. Price comparison of fixed call termination can be found at FICORA's WebPages at: <http://www.ficora.fi/en/index/tutkimukset/tutkimukset/tukkuhintavertailut.html>.

Figure 88



Bulgaria: Mobile-to-fixed local termination rate: According to the interconnect conditions provided in the RIO of the Bulgarian incumbent operator, mobile-to-fixed interconnection is realized only at double transit level the rates are different from those for fixed-to-fixed interconnection (5.11 €cents per minute).

Czech Republic: Double transit not used

Estonia: Data is not available.

Luxembourg: a 'double transit' isn't foreseen in Luxembourg.

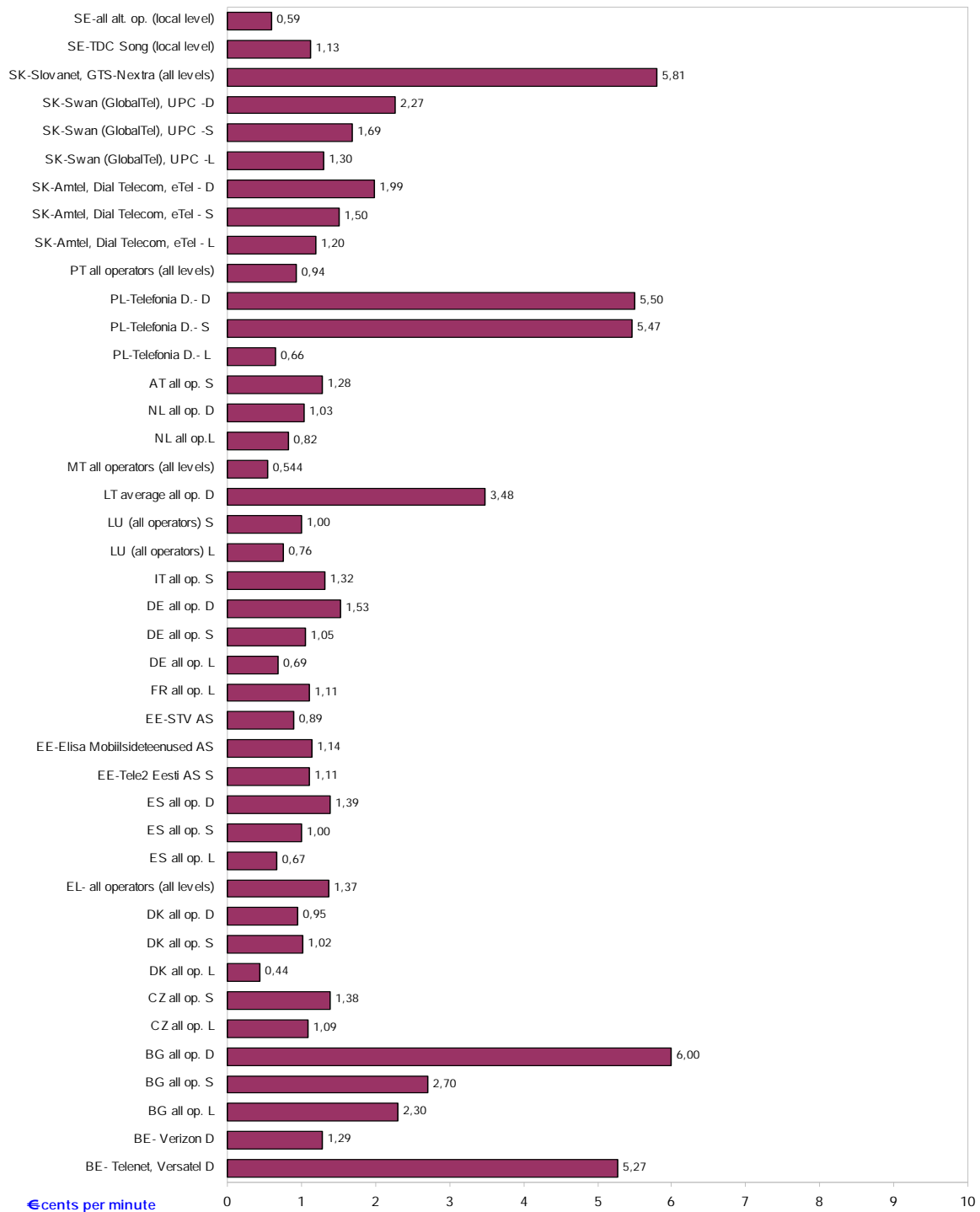
Lithuania: Only local and national level IC. National IC includes single and double transit.

Netherlands: These charges are one operator rates for national calls;

## 2.7. CALL TERMINATION ON ALTERNATIVE OPERATORS' FIXED NETWORKS

Figure 89

I.C. charges for call termination on main alternative operators fixed networks (peak) in €-cents, October 2007



Legend: L: Local, S: Single transit, D: Double transit

Cyprus, Hungary, Romania, Slovenia, Finland, United Kingdom: Data not available

## Fixed Voice Telephony Tariffs

France: Data not available

Ireland: No transit data available

### 3 BROADBAND ACCESS AND PRICING

#### 3.1. BROADBAND ACCESS DEFINITIONS

This section provides data on the number and type of fixed broadband lines supplied by both incumbent operators and new entrants in the EU. It also contains information on access lines provided by means of alternative technologies such as wireless access (WLL), fibre and cable modems.

Information has been provided by the national regulatory authorities through the ONP COM02-18 and COCOM07-35 REV1 questionnaires on data for local broadband access. Given the rapid developments in this sector, it has been agreed with NRAs to update the questionnaires on a regular basis in January and July. Unless otherwise stated, the data below refer to the market situation at 1 January 2008.

The definitions used in the charts and data below are as follows:

- Fully unbundled lines: Fully unbundled lines supplied to other operators, excluding experimental lines. In the case of full unbundling, a copper pair is rented to a third party for its exclusive use. As fully unbundled lines (LLU) supplied by the incumbent operator to the new entrants could in principle be used for services other than broadband, the total number of LLU for access to internet will be lower than the total number of LLU.
  - Shared access lines supplied by the incumbent to new entrants: Shared access lines supplied to other operators, excluding experimental lines. In the case of shared access, the incumbent continues to provide telephony service, while the new entrant delivers high-speed data services over that same local loop.
  - WLL: Internet broadband connections by means of wireless local loop (sometimes referred to as fixed wireless access).
  - Cable modem: Internet broadband connections by means of cable TV access.
  - L.L. or Other traditional wireline access: Internet broadband connections by means of dedicated capacity (Leased Lines) provided over metallic copper pairs, including tail ends or partial circuits. "Incumbent's leased lines" includes only retail lines and excludes lines provided to other operators. "New entrants' leased
  - Bitstream access: Supplied to new entrants. Bitstream access refers to the situation where the incumbent installs a high-speed access link to the customer premises and then makes this access link available to third parties, to enable them to provide high-speed services to customers. Bitstream depends in part on the PSTN and may include other networks such as the ATM network. Bitstream access is a wholesale product that consists of the provision of transmission capacity in such a way as to allow new entrants to offer their own, value-added services to their clients. The incumbent may also provide transmission services to its competitor, to carry traffic to a 'higher' level in the network hierarchy where new entrants may already have a broadband point of presence.
  - Simple resale: In contrast to bitstream access, simple resale occurs where the new entrant receives and sells on to end users - with no possibility of value added features to the DSL part of the service - a product that is commercially similar to the DSL product provided by the incumbent to its own retail customers, irrespective of the ISP service that may be packaged with it. Resale offers are not a substitute for bitstream access because they do not allow new entrants to differentiate their services from those of the incumbent (i.e. where the new entrant simply resells the end-to-end service provided to him by the incumbent on a wholesale basis).
  - Incumbent's DSL lines: Provided to end users by the incumbent, its subsidiaries or partners (for example an associated company such as a joint venture providing ISP services).
- lines" includes all retail lines provided to end users, even if based on wholesale lines supplied by the incumbent.
- Fibre to the home: Internet broadband connections by means of fibre optic.
  - Satellite: Internet broadband connections via satellites.
  - Powerline communications: Internet broadband transmitted over utility power lines.

## Fixed Voice Telephony Tariffs

- Other categories: Internet broadband connections by means of local area networks, other.
- Retail access: Access provided to end users.
- Incumbents are defined as the organisations enjoying special and exclusive rights or *de facto* monopoly for provision of voice telephony services before liberalisation, regardless of the role played in the

provision of access by means of technologies alternative to the PSTN.

- “New entrants” refers to alternative telecommunications operators, as well as internet service providers (ISPs).
- Broadband capacity: Capacity equal to, or higher than, 144 Kbit/s.



### 3.2. WHOLESALE ACCESS

This section shows the availability of fixed wholesale access lines supplied by incumbent operators to new entrants. Separate figures are provided for fully unbundled lines, shared access, bitstream access and resale.

As can be seen from the table at the end of this section, data are not always available, especially as regards wholesale lines. Occasionally, older data than January 2008 is used. The table below shows the number of agreements between operators for LLU, shared access, bitstream and resale as at 1 January 2006, 2007 and 2008.

Figure 90

	N. of agreements on fully unbundled lines			N. of agreements on shared lines			N. of agreements on Bitstream access			N. agreements on resale lines		
	JAN 06	JAN 07	JAN 08	JAN 06	JAN 07	JAN 08	JAN 06	JAN 07	JAN 08	JAN 06	JAN 07	JAN 08
<b>BE</b>	8	9	9	8	9	9	11	13	13	18	18	18
<b>BG</b>			3		3	3			1		3	2
<b>CZ</b>	4	6	6	4	6	6		22	21	19		
<b>DK</b>	21	21	25	7	8	8	11	14	18	11	11	14
<b>DE</b>	100	103	109	18	18	20	3				27	31
<b>EE</b>		7	7									
<b>EL</b>	12	14	19	2	7	7	10	15	16			
<b>ES</b>	13	17	21	10	13	13	30	25	23		2	2
<b>FR</b>	21			21			5			20		
<b>IE</b>	3	5	7	4	5	7	9	11	14			
<b>IT</b>	25	27	31	6	9	13	239	248	162			
<b>CY</b>		2	3		2	3						
<b>LV</b>	2	2	2	2	2	2	11	11	10			
<b>LT</b>		1	2				12	9	10			
<b>LU</b>	4	4	5	4	4	5			7	6	7	7
<b>HU</b>	6	7	9	4	7	9	20	20	25			
<b>MT</b>									11	19	11	
<b>NL</b>	10	10	9	10	10	9	5	5	5			
<b>AT</b>	29	36	37	29	3	3			46			
<b>PL</b>			8			8		6	19			
<b>PT</b>	3	5	5	2	1	1	8	7	8			
<b>RO</b>		17	17		17	17						
<b>SI</b>	3	3	3		3	3	12	12	6		4	3
<b>SK</b>											12	16
<b>FI</b>												
<b>SE</b>	131			131			26					
<b>UK</b>	53	55	57	29	31	33	24	30	38	619	582	541
<b>EU</b>	448	351	394	291	158	179	436	448	453	712	677	634

This table shows the distribution of wholesale access lines supplied by the incumbent operators to new entrants. A solid increase has been registered during 2007 in the number of wholesale unbundled

local loops (fully unbundled lines and shared access lines). The growth of wholesale LLU lines, representing 12.8% of the activated PSTN lines in the EU, was 47.7%, from 15.9 million in January

## Broadband access

2007 to nearly 23.5 million in January 2008. This increase comprises nearly 5.9 million newly added fully unbundled lines and 1.7 million newly added shared access lines. The number of shared access lines increased from 5 million to 6.7 million lines, while fully unbundled lines went up from 10.9 million to a remarkable 16.8 million. Bitstream had

more moderate growth. Nearly 0.6 million new lines have been added during 2007.

In addition to the incumbents' wholesale products, a number of alternative operators are also providing their own wholesale DSL lines to other competitors. However, these data remain largely unavailable and have not been presented below.

Figure 91

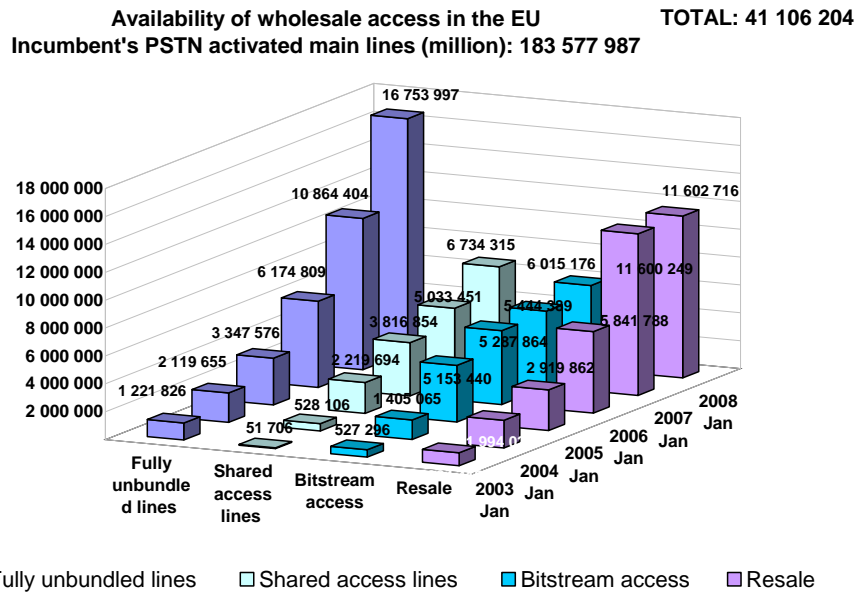
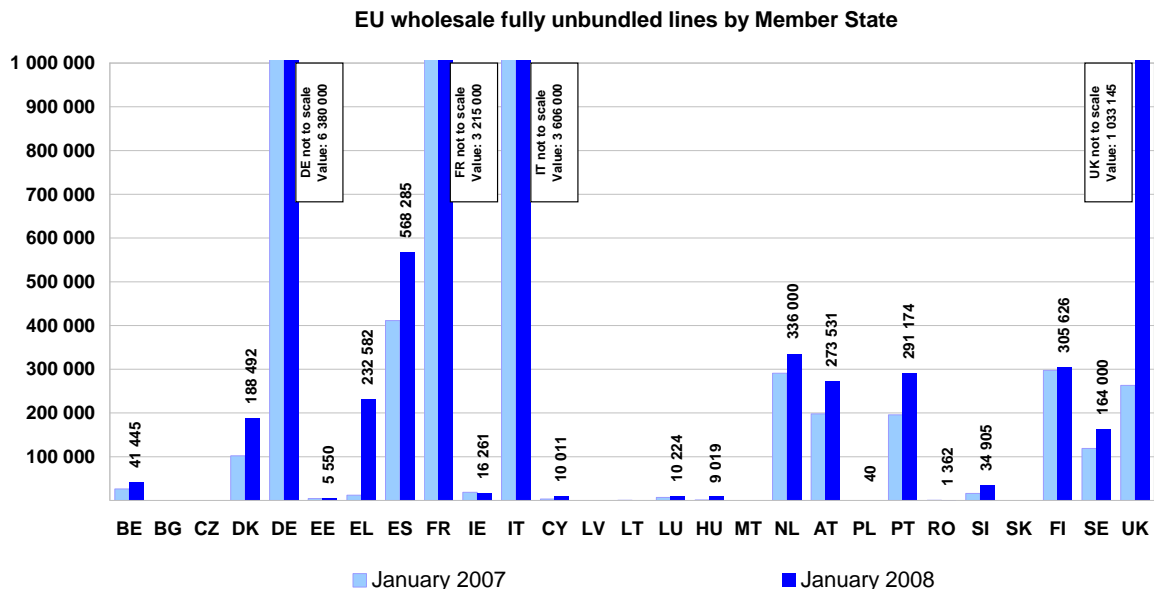
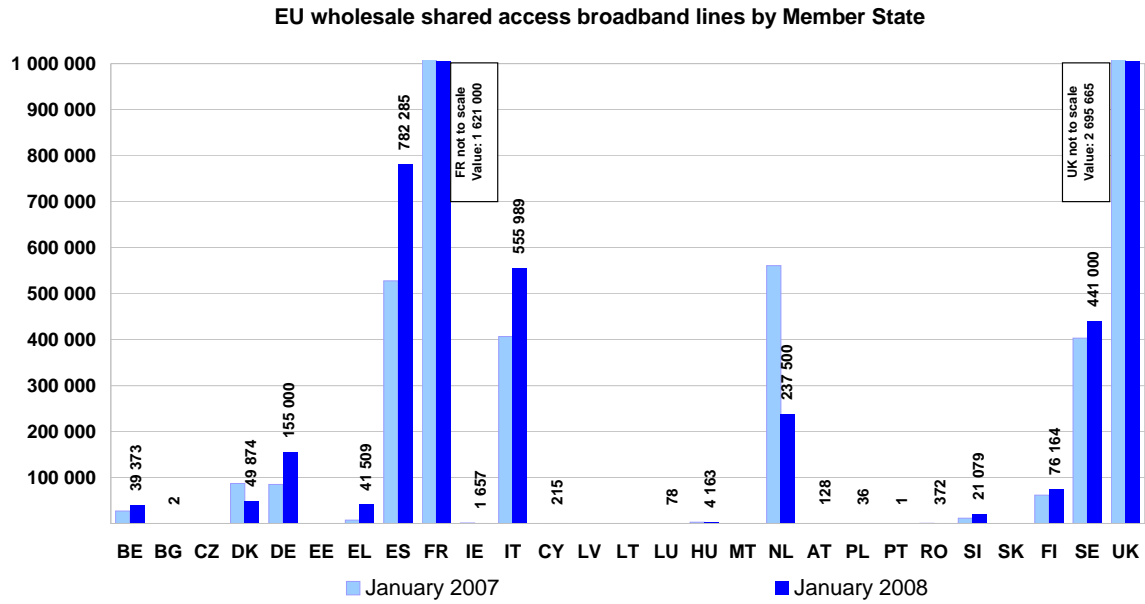


Figure 92



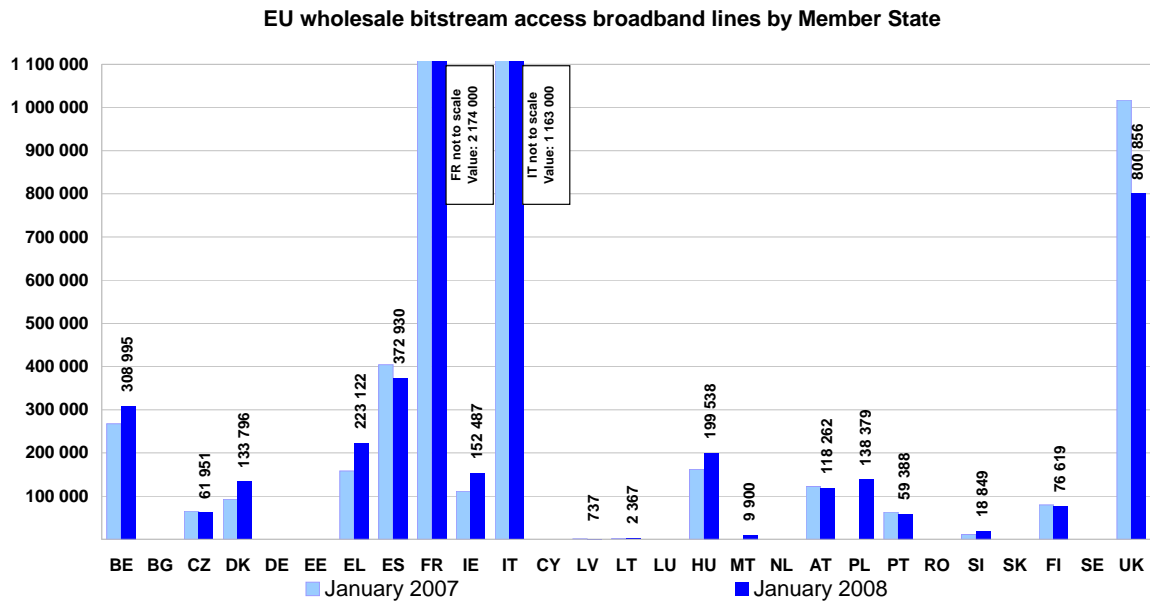
Data for Estonia, France, Lithuania, the Netherlands and Austria as of October 2007. Data for the Czech Republic are confidential.

Figure 93



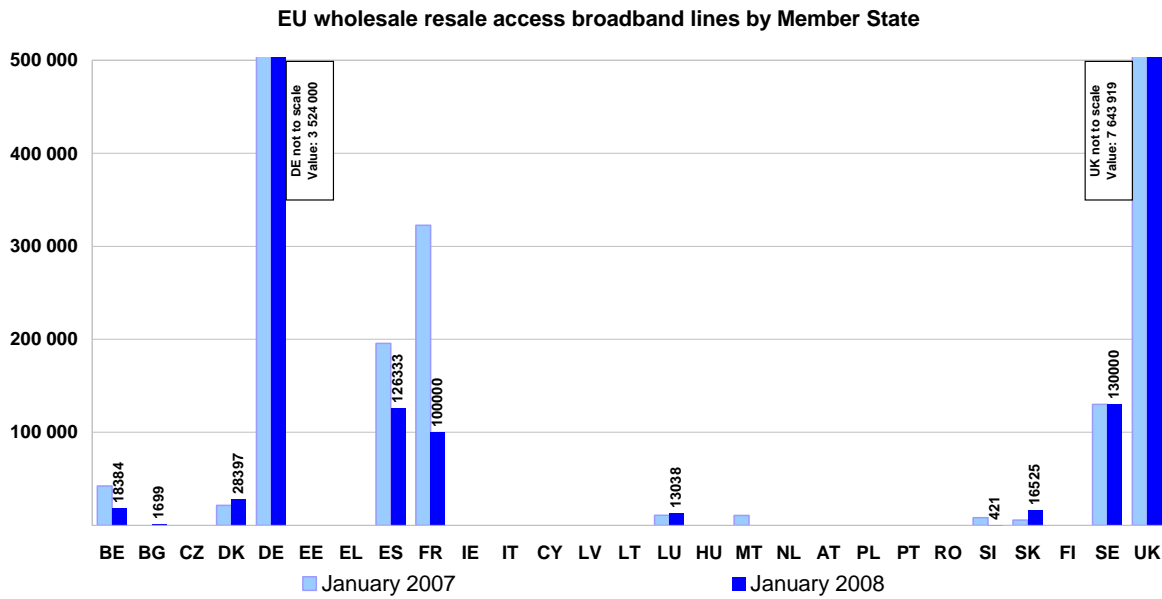
Data for Estonia, France, Lithuania, the Netherlands and Austria as of October 2007. Data for the Czech Republic are confidential.

Figure 94



Data for Estonia, France, Lithuania, the Netherlands and Austria as of October 2007. Data for the Netherlands are confidential.

Figure 95



Data for Estonia, France, Lithuania, the Netherlands and Austria as of October 2007.

### 3.3. RETAIL BROADBAND ACCESS

This section provides information on the deployment of fixed broadband access lines by incumbents (and their subsidiaries or partners) and by new entrants (alternative telecom operators or Internet Service Providers) to end-users.

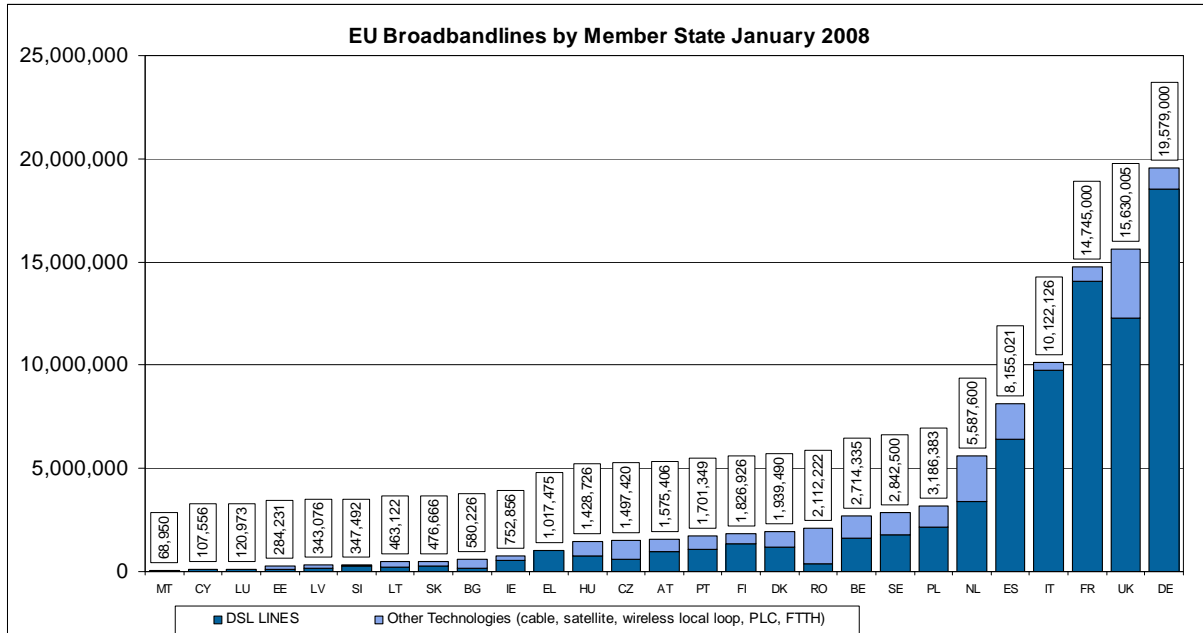
Internet broadband access can be provided by different means: DSL lines, cable TV access (cable modem), wireless local loop (WLL), fibre, dedicated leased lines and other access (such as satellite, dedicated leased lines, powerline communications, local area networks, etc.).

New entrants' DSL lines can be provided to end users by means of fully unbundled or shared access lines, bitstream access or resale. In some Member States, new entrants have started rolling out parallel DSL networks.

In all the charts below on fixed broadband retail lines the data refer to 1 January 2007 and 1 January 2008. In some cases only estimates are available or data is from October 2007. The charts below only include fixed broadband lines.

The following figure shows the total number of fixed broadband access lines for each Member State, provided by both incumbents and new entrants, and including all types of fixed broadband connections.

Figure 96

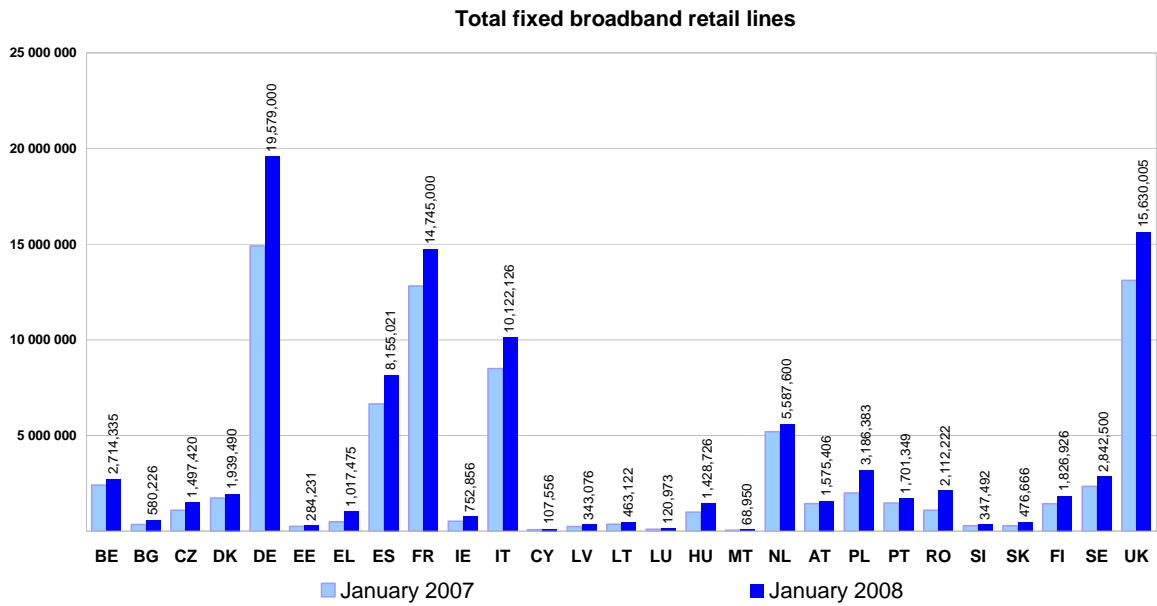


Data for Estonia, France, Lithuania, the Netherlands and Austria as of October 2007.

The following chart presents the number of broadband lines per Member State in January 2007 and January 2008.

## Broadband access

Figure 97

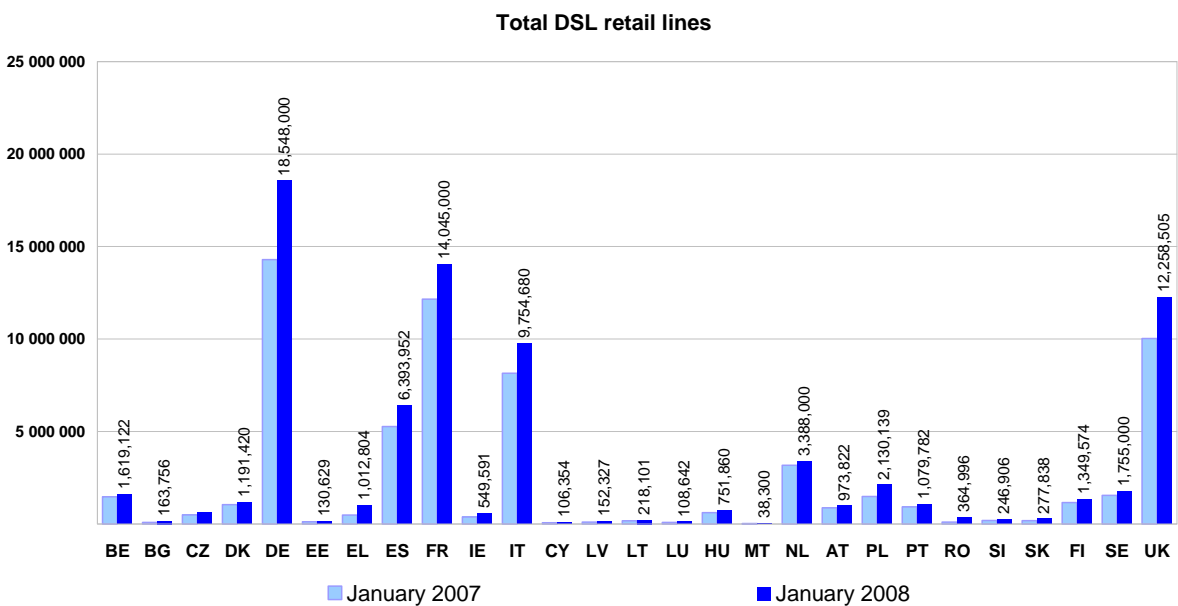


Data for Estonia, France, Lithuania, the Netherlands and Austria as of October 2007.

The following two charts show the breakdown of broadband lines according to the two main types of technologies. Figure 98 shows the number of DSL lines. Amongst the technologies other than DSL (

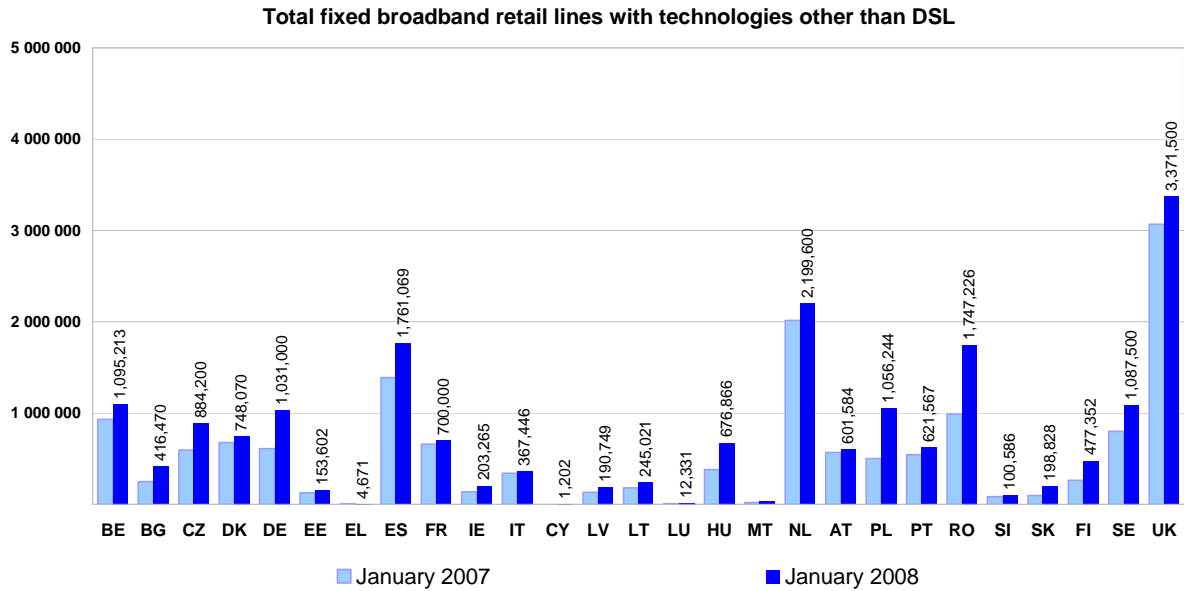
Figure 99), cable modem is the most common technology. Other technologies are still marginal, though some (fibre to the home and WLL) are quickly developing.

Figure 98



Data for Estonia, France, Lithuania, the Netherlands and Austria as of October 2007.

**Figure 99**



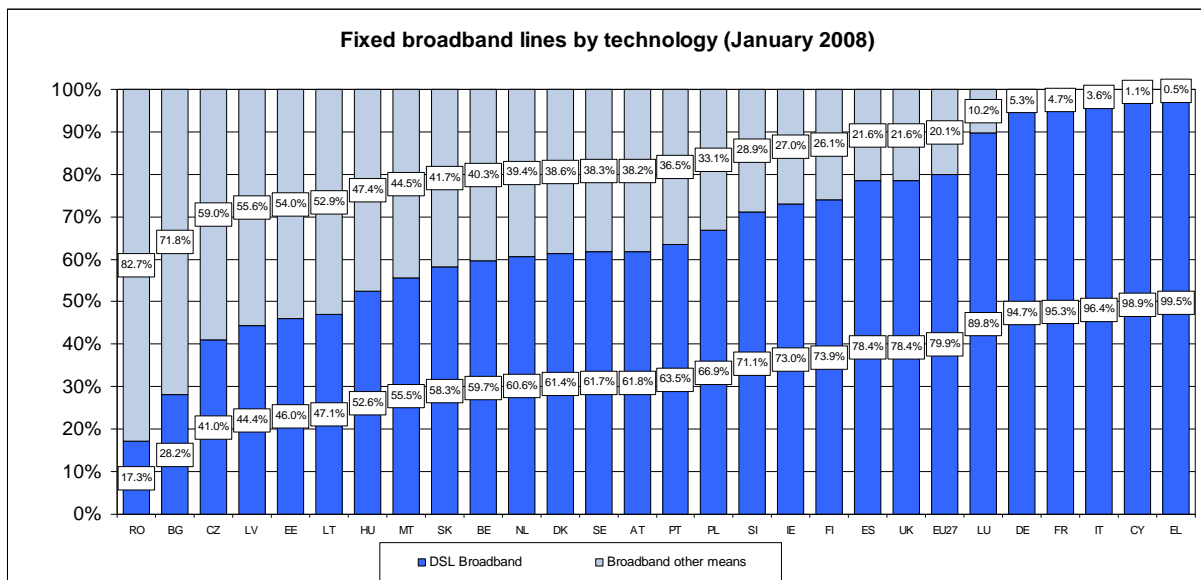
Data for Estonia, France, Lithuania, the Netherlands and Austria as of October 2007.

in the EU. On average, 79.9% of the EU broadband lines use DSL technologies, while in six countries DSL lines represent less than 50% of the overall market.

The following charts provide information on the national broadband markets according to the technology used and the type of operator. Figure 100 shows that DSL is the predominant technology

**Figure 100**

## Broadband access

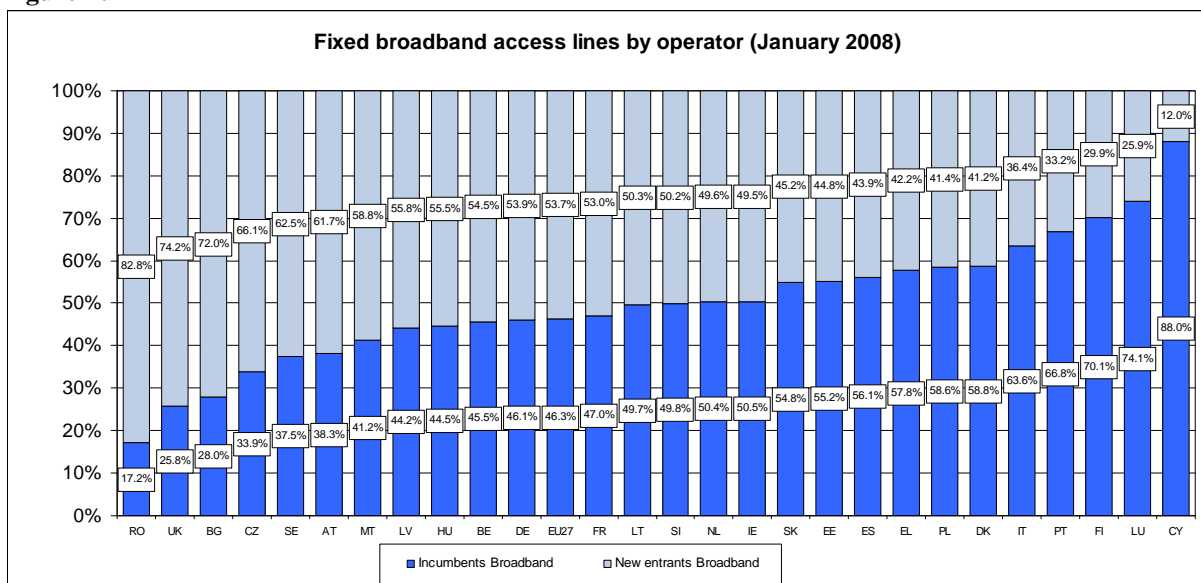


Data for Estonia, France, Lithuania, the Netherlands and Austria as of October 2007.

With regard to the market share of fixed incumbent operators and new entrants, the following chart

indicates that, on average, incumbent operators control 46.3% of broadband lines, which is a half percentage point less than in January 2007.

**Figure 101**

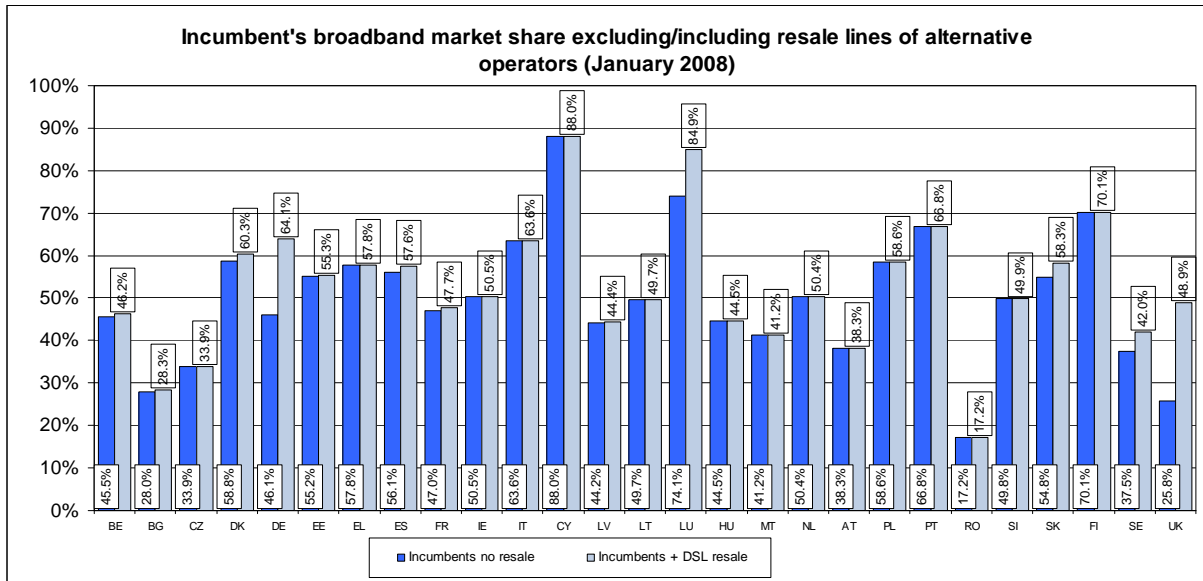


Data for Estonia, France, Lithuania, the Netherlands and Austria as of October 2007.

However, differences in the incumbents' market share depending on whether DSL resale lines are included or not are considerable.



Figure 102

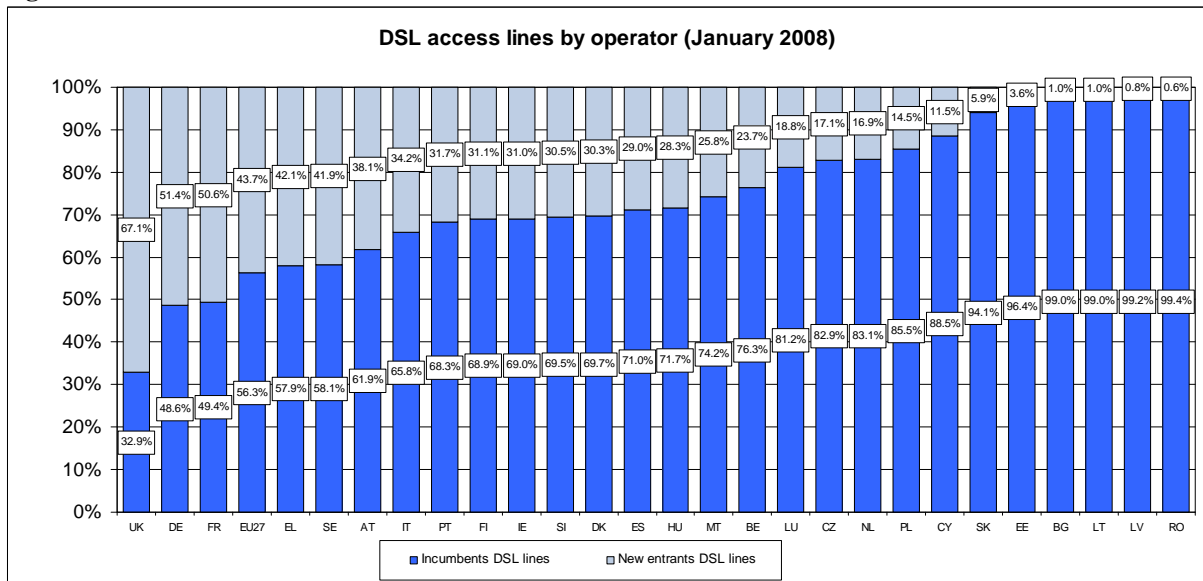


Data for Estonia, France, Lithuania, the Netherlands and Austria as of October 2007.

Next chart presents the market share by operator in the DSL retail market. At EU level the fixed

incumbent operators provide 56.3% of DSL lines. In 11 Member States the incumbent operators sell more than 80% of all DSL retail lines.

Figure 103

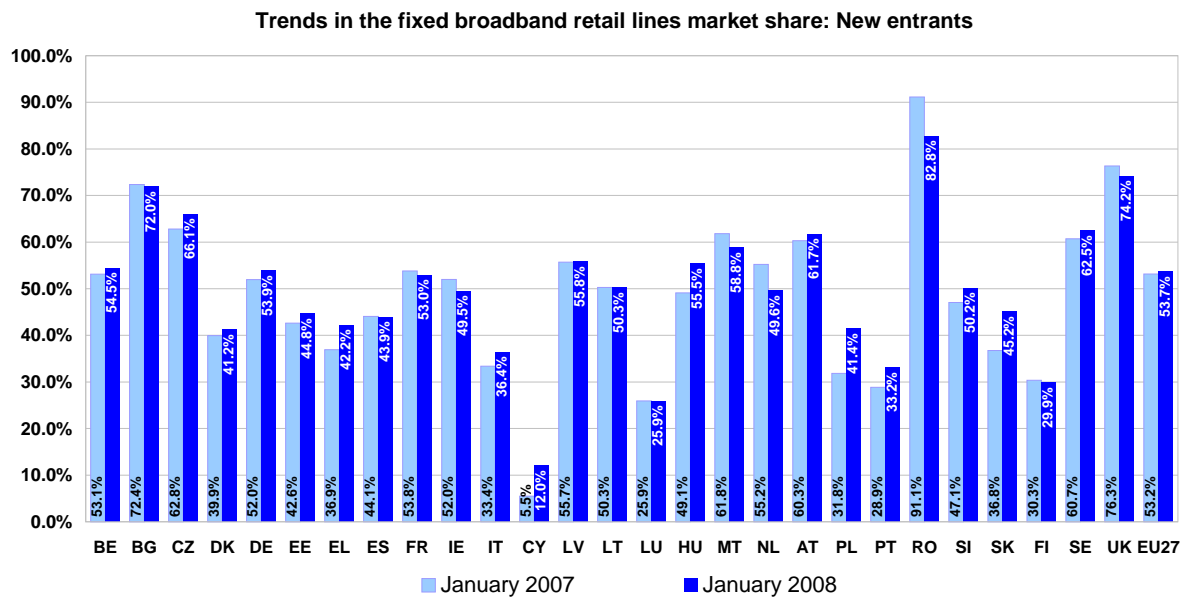


Data for Estonia, France, Lithuania, the Netherlands and Austria as of October 2007.

The next series of charts provide further information on the trends observed in the three segments analysed previously. As can be seen in figure 12, new entrants are steadily increasing their presence in the overall fixed broadband market,

with an average 53.7% market share against 53.2% a year ago. This trend is however not uniform, and in nine countries, Bulgaria, Spain, France, Ireland, Malta, the Netherlands, Romania, Finland and the United Kingdom the fixed incumbent operator has increased its market share.

Figure 104

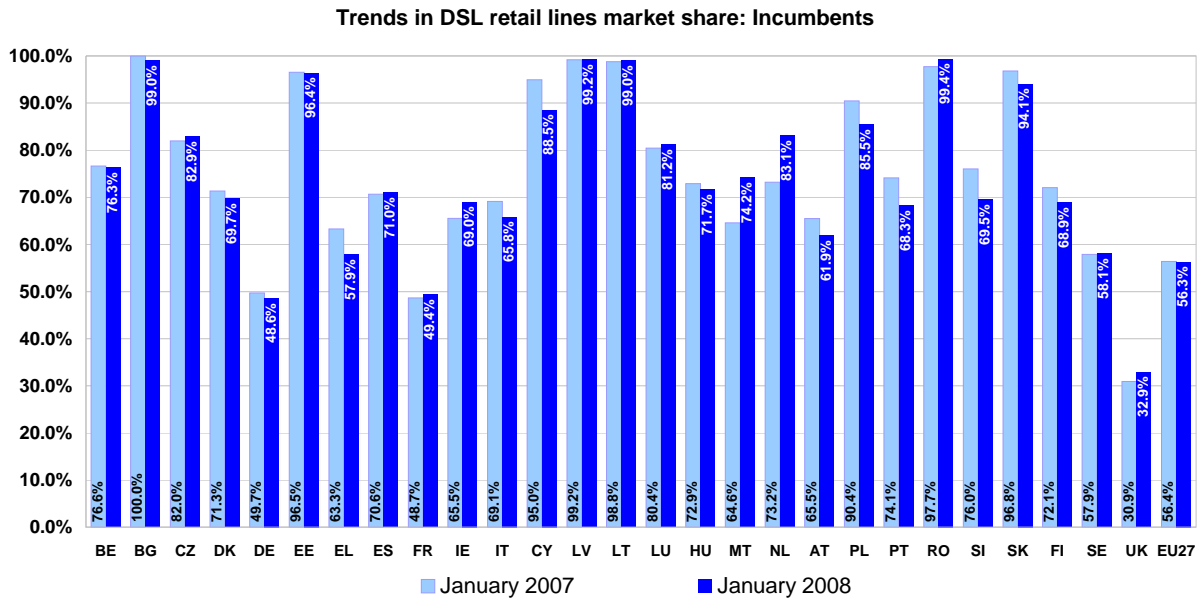


Data for Estonia, France, Lithuania, the Netherlands and Austria as of October 2007.

With regard to the trend in the number of DSL lines sold by incumbent operators in the same period,

there has been, on EU average, almost no change in the period January 2007–January 2008.

Figure 105

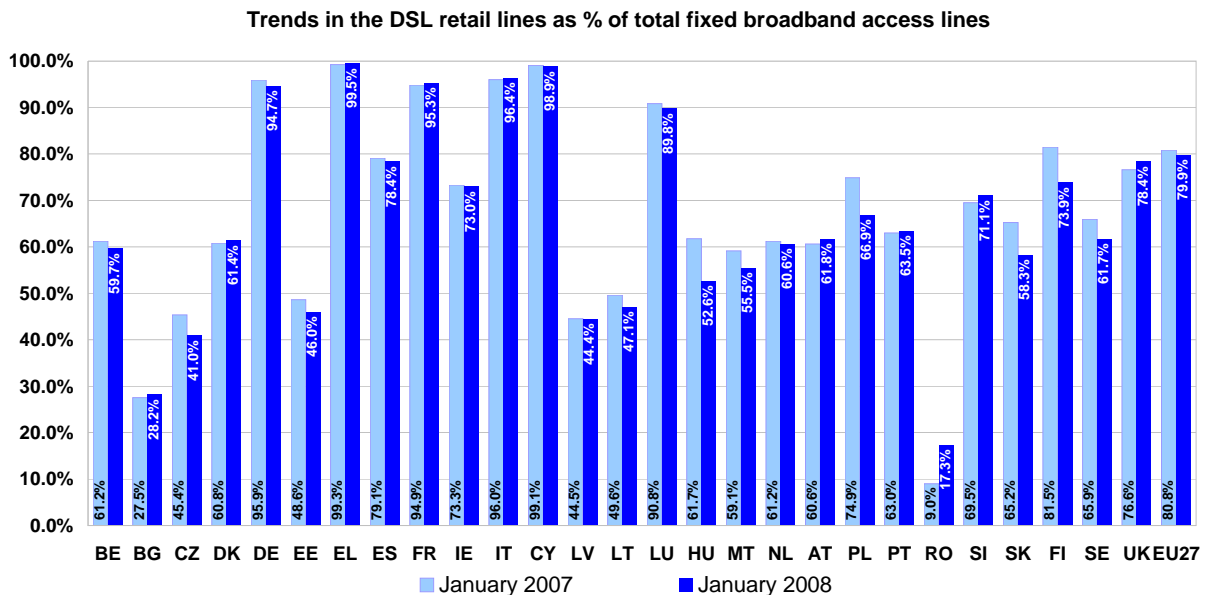


Data for Estonia, France, Lithuania, the Netherlands and Austria as of October 2007.

The number of DSL lines has decreased in the overall fixed broadband retail market, representing 79.9% of all broadband lines against 80.8% in January 2007. However, in a number of countries, Bulgaria, Denmark, Greece, France, Italy, Austria,

Portugal, Romania, Slovenia and the United Kingdom, the share of DSL has increased.

**Figure 106**



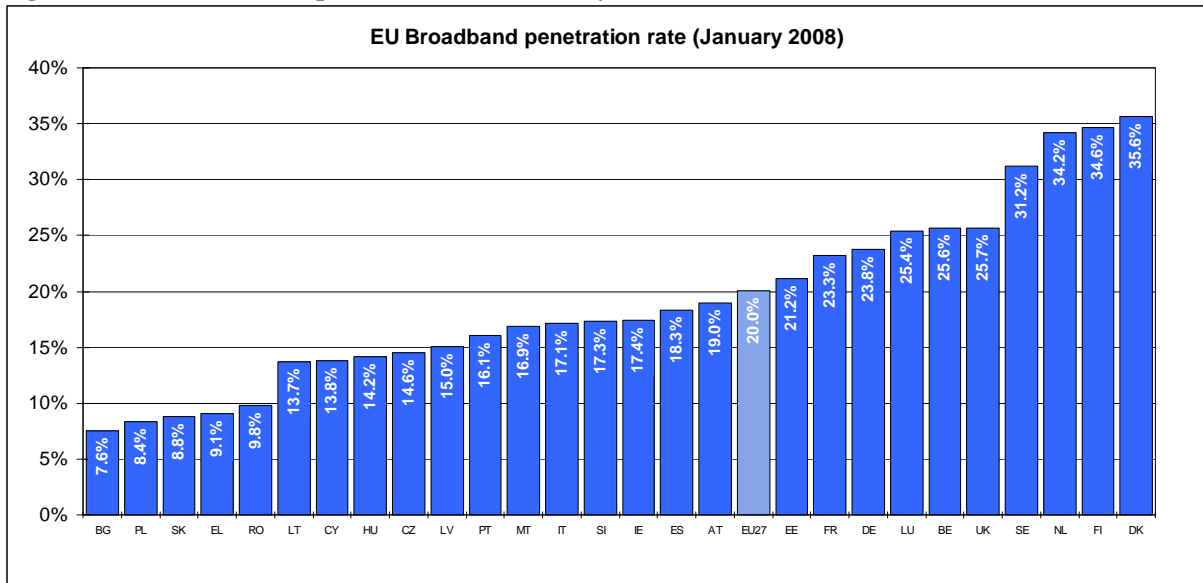
Data for Estonia, France, Lithuania, the Netherlands and Austria as of October 2007.

The following chart shows the penetration rate for fixed broadband lines measured as the total number of broadband lines divided by the total population. The broadband penetration rate varies significantly

across Member States ranging from 7.6% in Bulgaria to 35.6% in Denmark.

Broadband access

Figure 107: EU broadband penetration rate (January 2008)



Data for Estonia, France, Lithuania, the Netherlands and Austria as of October 2007.

Availability of wholesale access January 2008											
Country	Incumbent's PSTN activated main lines	Fully unbundled lines supplied by the incumbent to new entrants			Shared access lines supplied by the incumbent to new entrants			Wholesale DSL lines supplied			
		Unbundled lines	Requested lines	N. of agreements	Shared lines	Requested lines	N. of agreements	Bitstream access		Simple resale	
								No. of lines	No. of agreements	Resale No. of lines	No. of agreements
BE	4010973	41445		9	39373		9	308995	13	18384	18
BG	2322050			3	2	10	3		1	1699	2
CZ	2104955	confidential		6	confidential		6	61951	21		
DK	2689264	188492		25	49874		8	133796	18	28397	14
DE	37435000	6380000		109	155000		20			3524000	31
EE	466000	5550	490	7							
EL	5095282	232582	31066	19	41509	4466	7	223122	16		
ES	15852222	568285	31973	21	782285	23054	13	372930	23	126333	2
FR	34229000	3215000			1621000			2174000		100000	
IE	1600000	16261		7	1657		7	152487	14		
IT	19384799	3606000	55841	31	555989	1761	13	1163000	162		
CY	398095	10011		3	215		3				
LV	600000			2			2	737	10		
LT	718091		382	2				2367	10		
LU	223949	10224		5	78		5		7	13038	7
HU	3010000	9019	378	9	4163	65	9	199538	25		
MT	196000							9900	11		
NL	5533000	336000		9	237500		9	confidential	5		
AT	2675520	273531	6516	37	128		3	118262	46		
PL	7983365	40	59	8	36	51	8	138379	19		
PT	2957111	291174	3718	5	1		1	59388	8		
RO	3100000	1362		17	372		17				
SI	789893	34905	1193	3	21079	428	3	18849	6	421	3
SK	1170790									16525	16
FI	2045000	305626			76164			76619			
SE	4815000	164000			441000					130000	
UK	22172628	1033145		57	2695665		33	800856	38	7643919	541
EU27	183577987	16722652+CZ	131616	394	6723090+CZ	29835	179	6015176	453	11602716	634

Data for Estonia, France, Lithuania, the Netherlands and Austria as of October 2007.

Broadband access

BROADBAND RETAIL LINES, JANUARY 2008																								
		New entrants' DSL lines						Incumbents' access lines by other means							New entrants' access lines by other means									
	Incumbent's DSL lines	Own network	Full UL	Shared access	Bitstream access	Retail	Total	WLL	Cable modem	Leased lines	Fibre to the home	Satellite	PLC	Other	Total	WLL	Cable modem	Leased lines	Fibre to the home	Satellite	PLC	Other	Total	
BE	123 554 5		384 49	190 68	307 676	183 84	383 577								0	143 13	107 110 7	973 7	56					109 521 3
BG	162 101					165 5	165 5			589				2	591	178 4	917 19	461	231 9	3		319 593		415 879
CZ	508 199	500	con fide ntia l	con fide ntia l	619 51		624 51						100		100	520 000	309 000		550 00		100			884 100
DK	830 406		171 774	594 07	101 463	283 70	361 014	46	295 731	656 9				791 4	310 260	226 49	242 729	307 0	714 12	7	96	978 47	437 810	
DE	901 900 0	100 000	575 000 0	155 000		352 400 0	952 900 0					250 0			250 0		985 000			340 00	950 0			102 850 0
EE	125 889	171 2	298 8			40	474 0	513 1			255 58			422	311 11	162 14	659 69		227 12				175 96	122 491
EL	586 308		161 865	415 09	223 122		426 496			135 5		350			170 5	123 1		114 1	594					296 6
ES	454 074 1		568 285	785 663	372 930	126 333	321 1				227 63	975 3			325 16	519 07	163 348 9	361 89	529 4	747		927		172 855 3
FR	693 500 0		321 500 0	162 100 0	217 400 0	100 000	711 000 0								0		700 000							700 000
IE	379 189		162 61	165 7	152 484		170 402	295				386			681	112 718	823 33		396 7	356 6				202 584
IT	642 000 0	626	175 132 7	417 000	116 301 0	271 7	333 468 0			329	335	138 73		219	147 56	198 0		845 5	267 249	750 03	3			352 690
C	941	100	195	215			121			273	125	11		39	448		718			36				754



Broadband access

E U2 7	446		140	661		345									106							186	
	097	399	287	412	595	757	700							135	522	142		121			188	311	
	38	355	47+	0+	173	605	12+	400	926	176	910	268		249	169	7+	270	975	523	121	164	827	69+
			CZ	CZ	6	4	CZ	92	698	42	64	73	100	224	3	MT	37	87	4	323	82	9	MT

Data for Estonia, France, Lithuania, the Netherlands and Austria as of October 2007.



### 3.4. PRICES FOR UNBUNDLED LOCAL LOOP

This section illustrates the cost of connection and monthly rental for both full unbundled access (full LLU) and shared access (SA) to the loop. Monthly rental and connection fees are presented as well as the total average monthly cost (over three years).

Unless otherwise stated connection fees include the technical expertise to assess the speed that can be conveyed through and disconnection fees (where applicable). Furthermore, only the price for a single line is presented here (charges may be different in the case of subsequent access). It is assumed that the loop is active and it will be used to provide both telephony and DSL services. Unless otherwise stated figures exclude a whole range of additional one-off costs that may exist in some Member States like, cost of co-location, cost for the cable termination point, cost for installation at the end-user premises, etc.

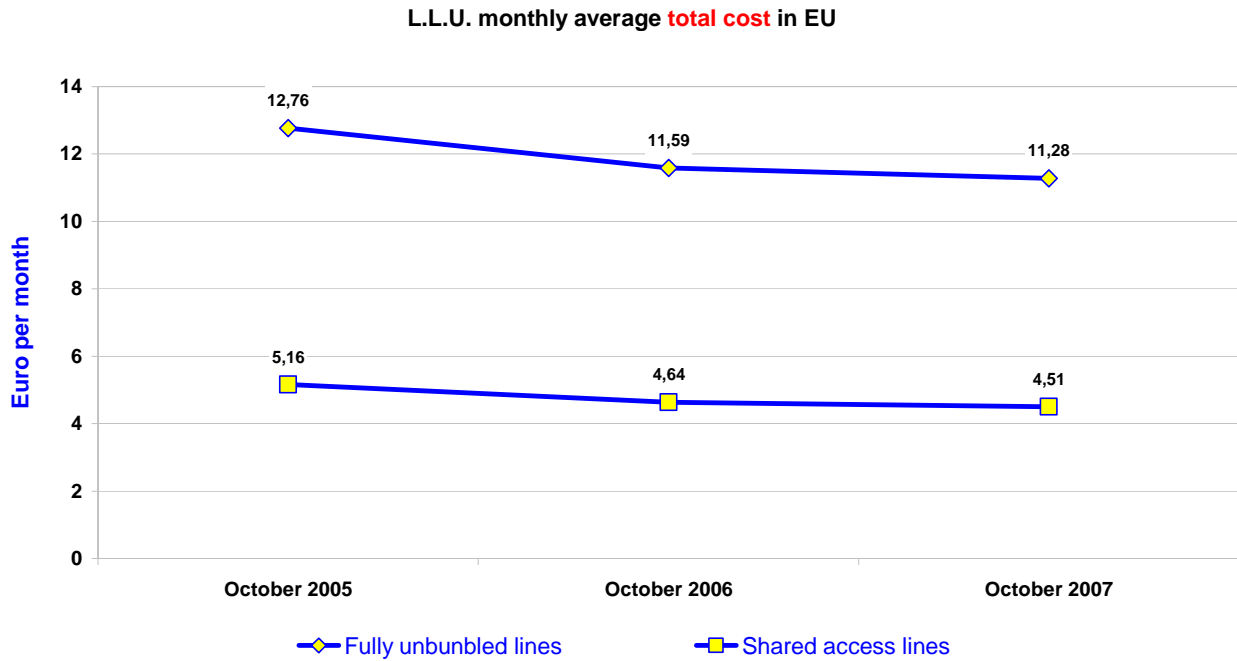
Data is not always comparable with that of the previous reports, due to changes in methodology occurred in some countries.

### 3.4.1. Monthly average total cost

The following charts illustrate the monthly total cost for the full LLU and shared access (connection and monthly fees) based on the assumption that the

loop is used for three years. EU average since 2005 is also shown.

Figure 108



Figures for 2005 do not include Bulgaria and Romania.

Figure 109

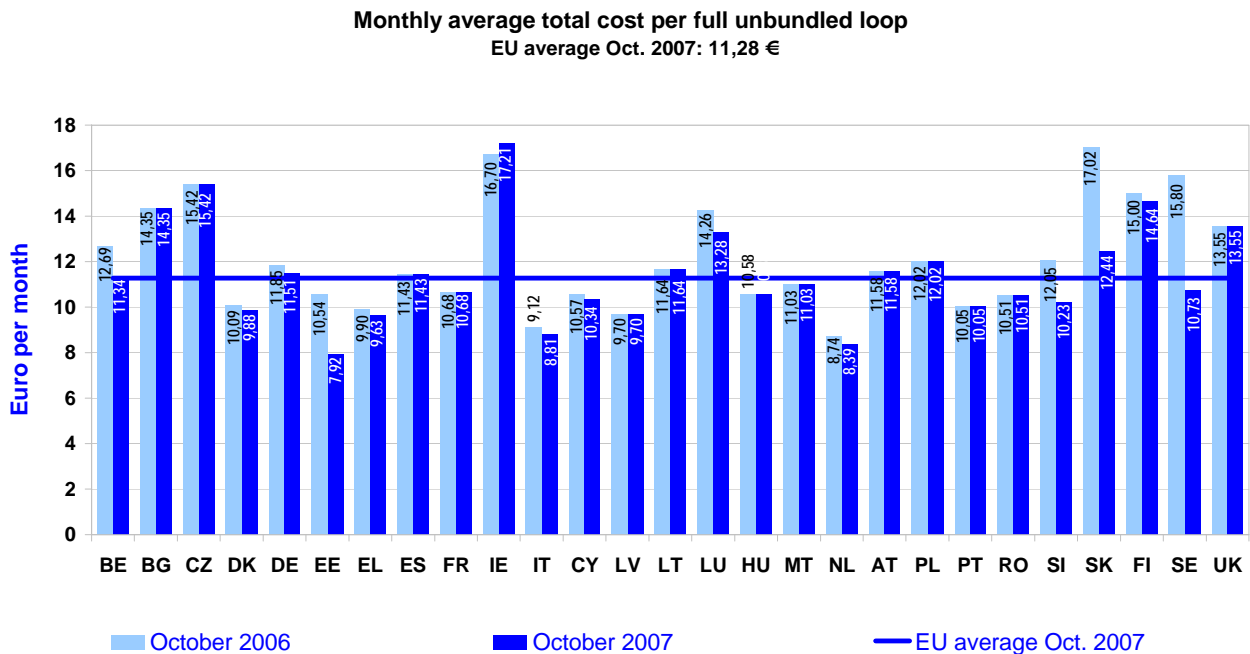
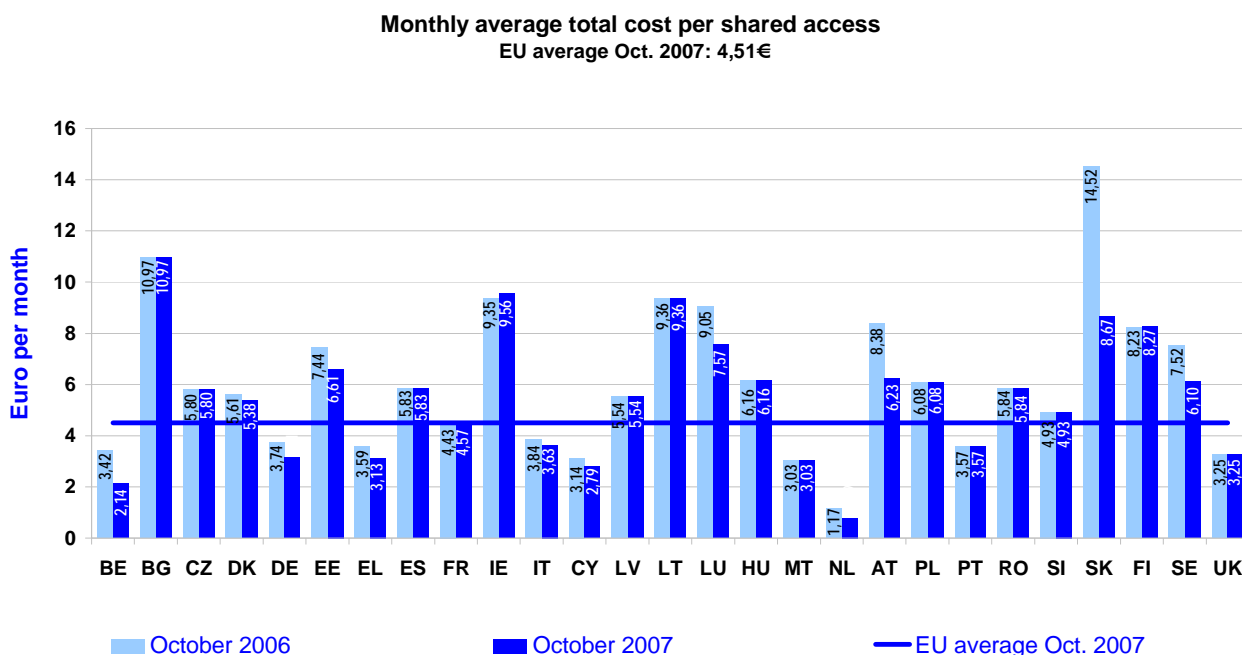
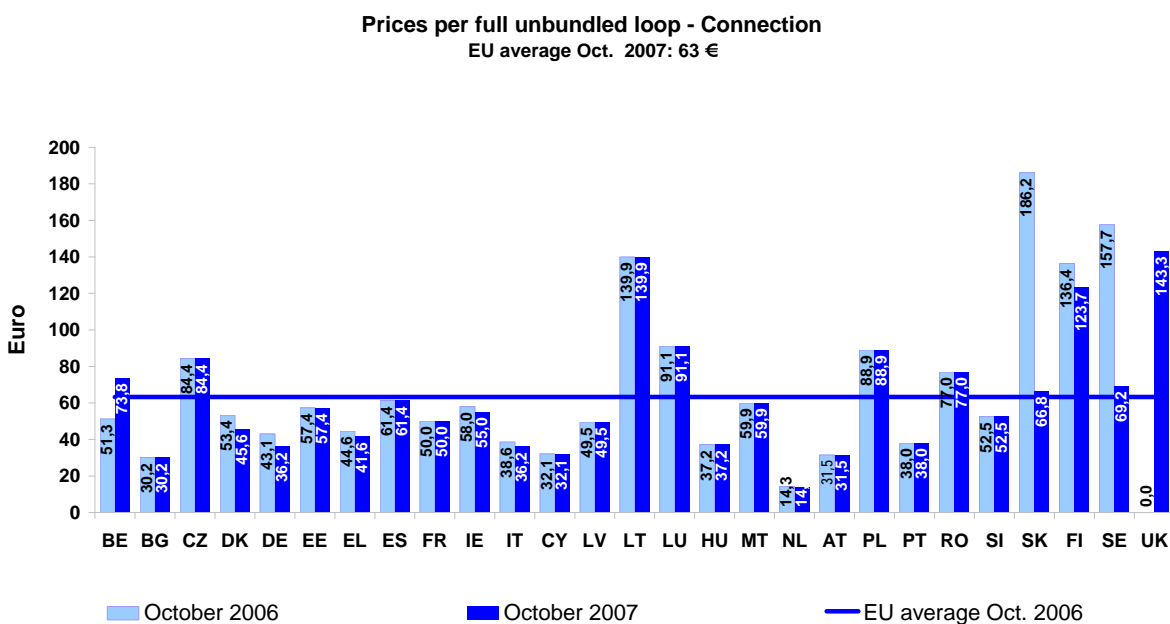


Figure 110



### 3.4.2. Connection and monthly rental for full unbundled local loop

Figure 111



Belgium: The tariff includes the visit at the customer's premises. A tariff without this cost (€25.44) is not available in practice.

Bulgaria: The cost of the test to assess the speed is not included. This price is not in compliance with the NRA's decision of July 2006 (€31.70)

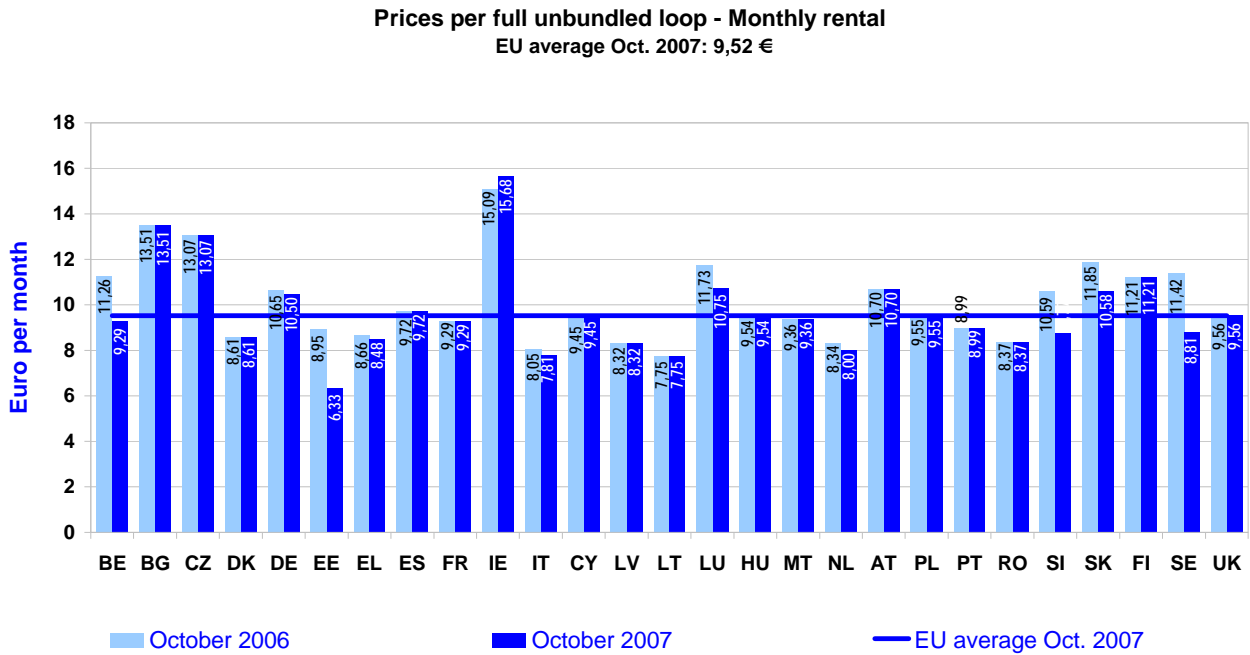
Denmark: Price applied from 30 June to 1 October 2007

Germany: Price without installation at the customer's premise, fee for cancellation between 5.21€ and 20.93€

Malta: Disconnection cost: Lm 14.40

Portugal: The test for assess the speed is not requested

Figure 112



Bulgaria: Prices are according to agreements currently in place. This price is not in compliance with the NRA's decision of July 2006 (€10.19)

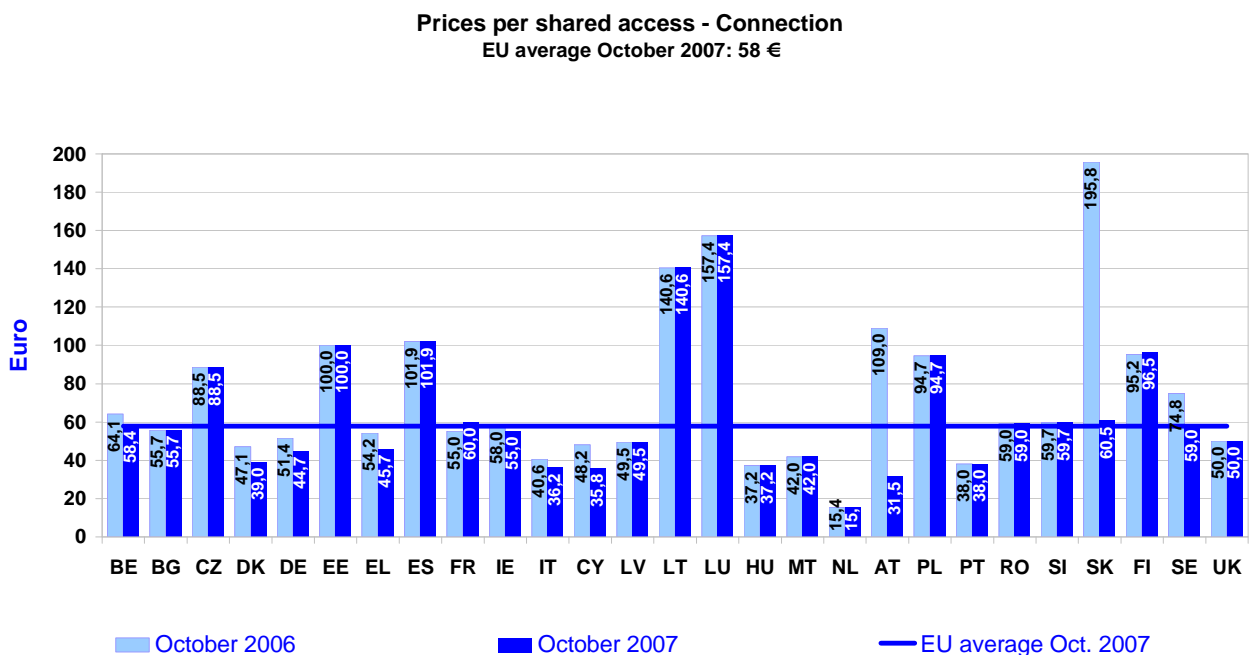
Denmark: The data reported as valid from the 1st of October 2007 are from 30th of June 2007.

Malta: Co-location costs are excluded.

Poland: The cost of disconnection fees is calculated according to the individual cost estimate.

### 3.4.3. Connection fees and monthly rental for shared access

Figure 113



Belgium: This cost includes a deactivation cost of 23.12€

Bulgaria: The cost of the test to assess the speed is not included.

Denmark: The data reported as valid from the 1st of October 2007 are from 30th of June 2007

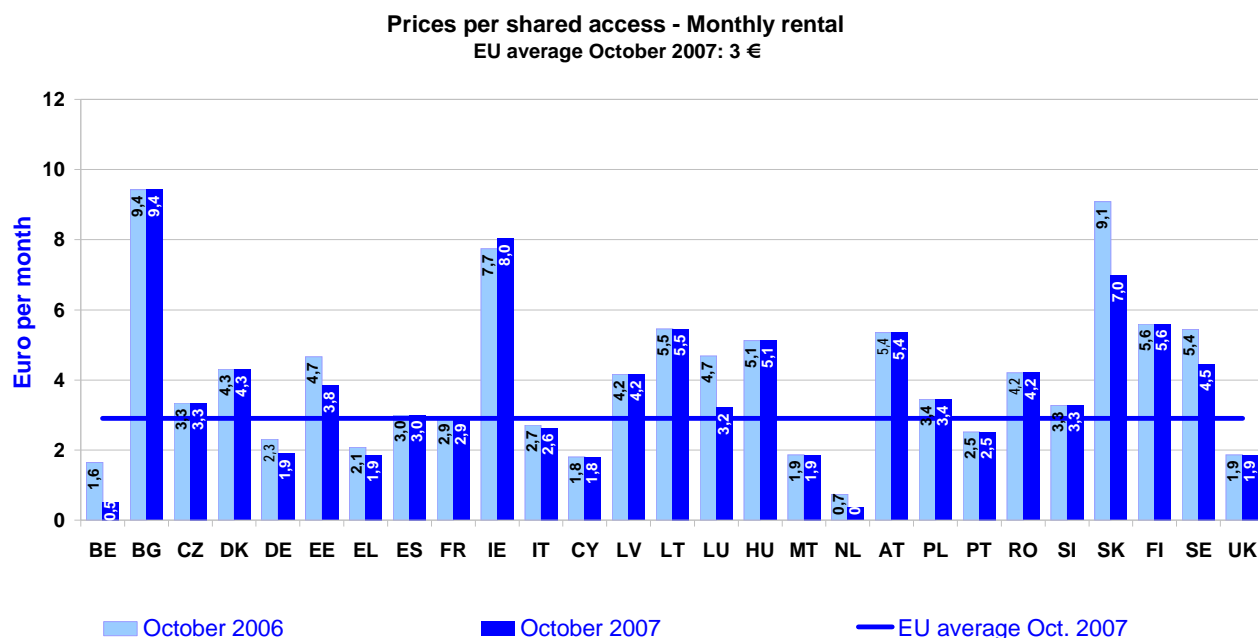
Hungary: Cost of co-location excluded

Malta: The splitter must be provided by the alternative operator

Portugal: The splitter is not provided by the incumbent. The test for assess the speed is not requested

Poland: The cost for the splitter is calculated according to the individual cost estimate.

Figure 114



Bulgaria: Prices applied to the agreements currently in place. This price is not in compliance with the NRA's decision of July 2006 (€4.57)

Denmark: The data reported as valid from the 1st of October 2007 are from 30th of June 2007

Portugal: The splitter is not provided by the incumbent

## 4 CONVERGED SERVICES - BUNDLED OFFERS

In this section, for the first time some indicators are presented for bundled offers.

More and more of the fixed voice telephony offers come bundled with other services (for example, broadband Internet or television). Although bundling is hard to measure (sometimes services in one offer are invoiced separately, sometimes not), it is becoming a key element of the fixed electronic communications markets: according to the questionnaires sent by NRAs 13% of the European population is already subscribed to a bundled offer with a single bill.

Actually, in this case, 'Bundled offer' means a commercial offer of a single operator which includes two or more services such as fixed and mobile public telephony services, access to TV programmes and broadband internet access, offered for a single price and as part of one bill.

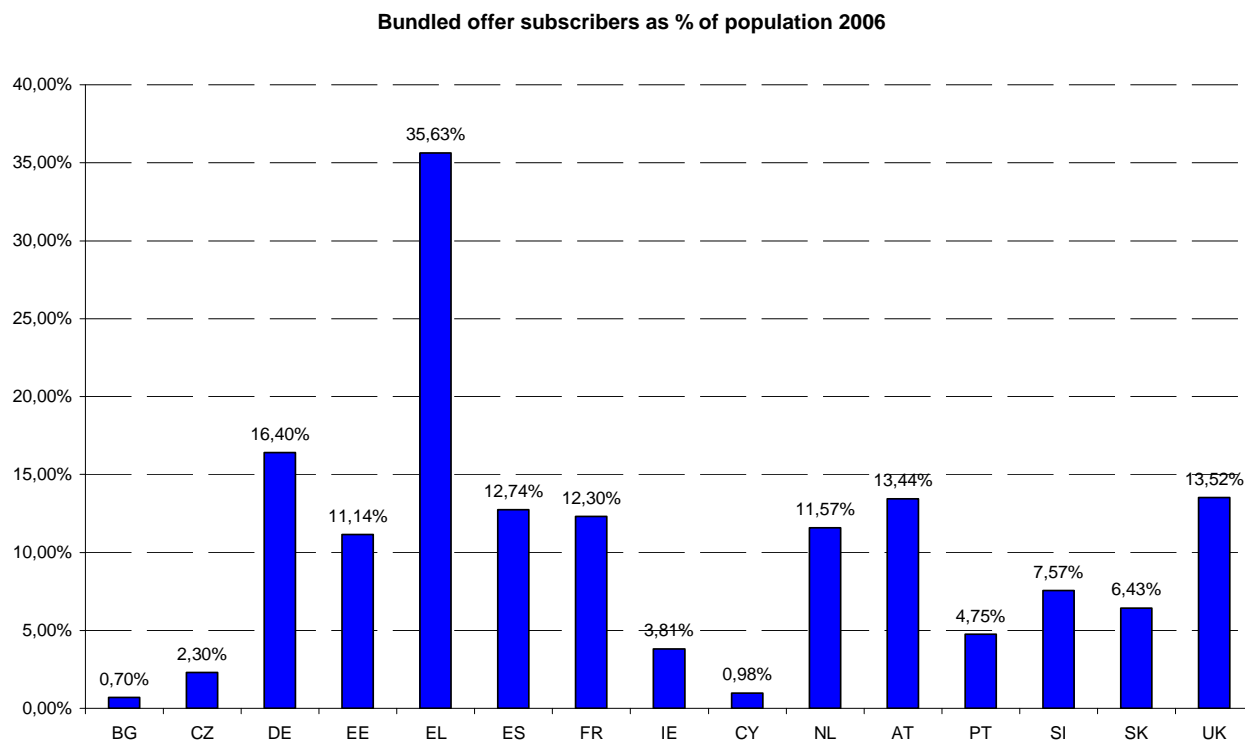
Although not every Member State is collecting data to measure the extent of this market development, the situation is likely to improve in the following Reports.

As this is the first year, data in this section is purely indicative and the data can be completed with the Eurostat E-Communications Household survey. The differences with this Implementation Report results can be attributed to a different definition (due to the billing of the services) and the lack of data for some countries.

According to this survey only 66% of the Europeans do not have a bundled package. 12% of Europeans include television on their bundle package (24% in the case of Denmark), 23% include voice telephony, 6% include mobile telephony (24% in the case of Luxembourg) and 24% include an Internet access 37% in the case of Netherlands).

The charts presented in this section are the number of bundled offer subscribers as a percentage of the population and the number of operators providing these offerings.

Figure 115



Bulgaria: Data as of end 2006. Data on Mobile/BB and is confidential.

Czech Republic: No quadruple play offers

Denmark: Only data on triple play: Fixed voice telephony and BB/TV on the same broadband connection

Germany: Data is not available. Total subscribers to Bundled Offers in Germany: Approx. 13.500.000 (July 2007).

France: Data concerning Bundled offers is estimated.

Ireland: Estimate based on a limited number of operators

Latvia: Data is not available.

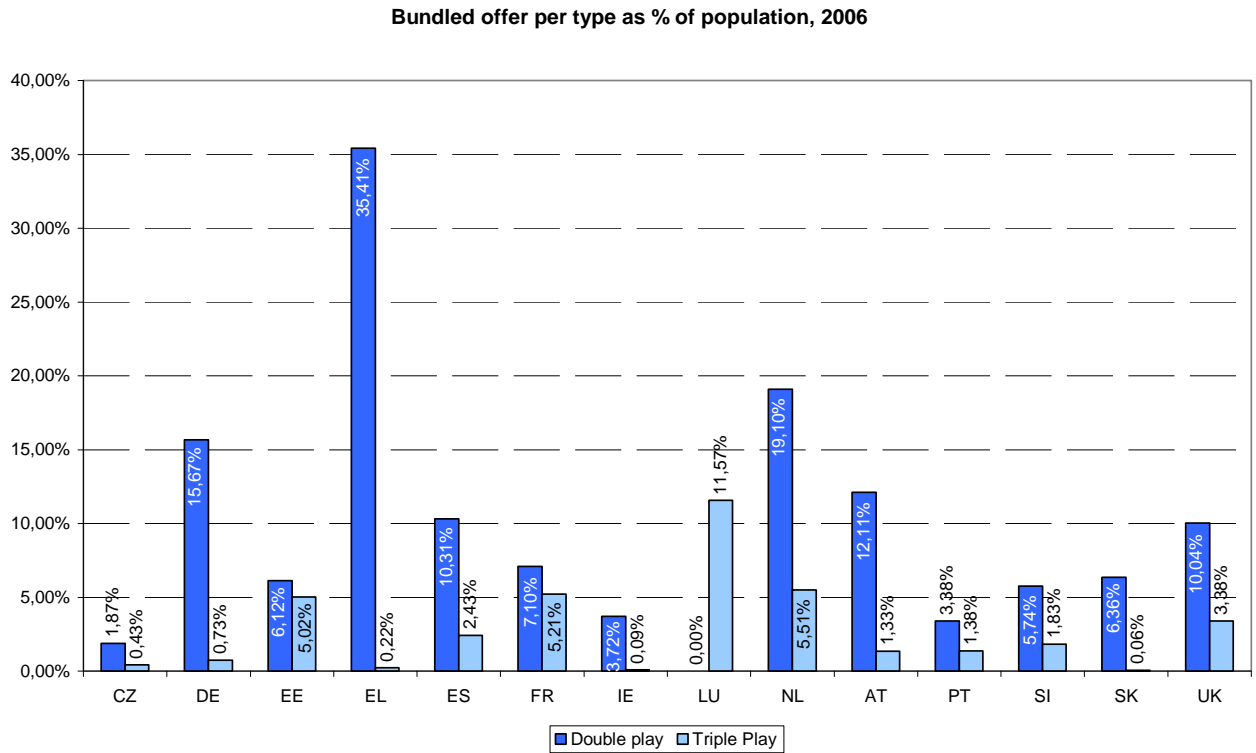
Malta: No data is available. No bundled packages were offered as at July 2007, when operators began to promote these offers.

Poland: This information is not available at this moment.

Romania: Data is not available yet.

United Kingdom: Subscribers estimated from Ofcom consumer research Q1 2007.

Figure 116



Bulgaria: Data as of end 2006. Data on Mobile/BB and is confidential.

Czech Republic: No quadruple play offers

Denmark: Only data on triple play: Fixed voice telephony and BB/TV on the same broadband connection

Germany: Subscribers Double Play in Germany: 12.900.000 (July 2007); Subscribers Triple Play in Germany: 600.000 (July 2007); Total subscribers Bundled Offers in Germany: Approx. 13.500.000 (July 2007).

France: Data concerning Bundled offers is estimated.

Ireland: estimate based on a limited number of operators

Latvia: Data is not available.

Malta: No data is available. No bundled packages were offered as at 01JULY07. During July 07, two operators started promoting such packages.

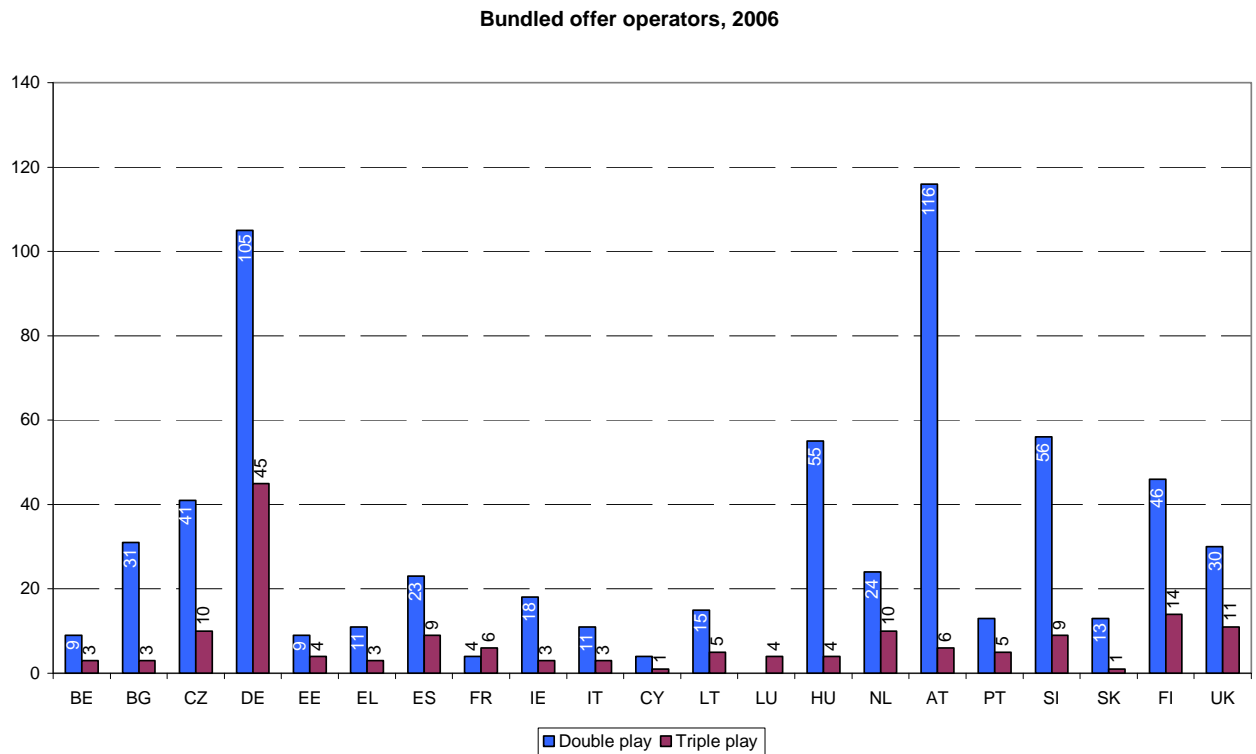
Poland: This information is not available at this moment.

Romania: Data is not available yet.

United Kingdom: Subscribers estimated from Ofcom consumer research Q1 2007.



Figure 117



Bulgaria: Data as of end 2006. Data on Mobile/BB and Mobile/TV is confidential (one service provided jointly by the incumbent and its subsidiary)

Estonia: Totally 7 operators provide bundled offers, 6 operators provide double-play bundled offers and 4 operators provide triple-play bundled offers

France: All data is estimated/

Latvia: Data is not available.

Malta: No bundled packages were offered as at July 2007, when operators began to promote these offers.

Netherlands: Excluding dozens of very small local FTTH initiatives and based on 90-95% of market volume.

Poland: Data not available

Sweden: Data on operators is estimated.

United Kingdom: Number of operators taken from Pure Pricing June 2007

**5 BROADCASTING**

In this section, for the first time some indicators are presented for broadcasting. This market is becoming more and more important from an electronic communications point of view due to the convergence phenomenon, by which the frontiers between these two traditional markets are diffusing.

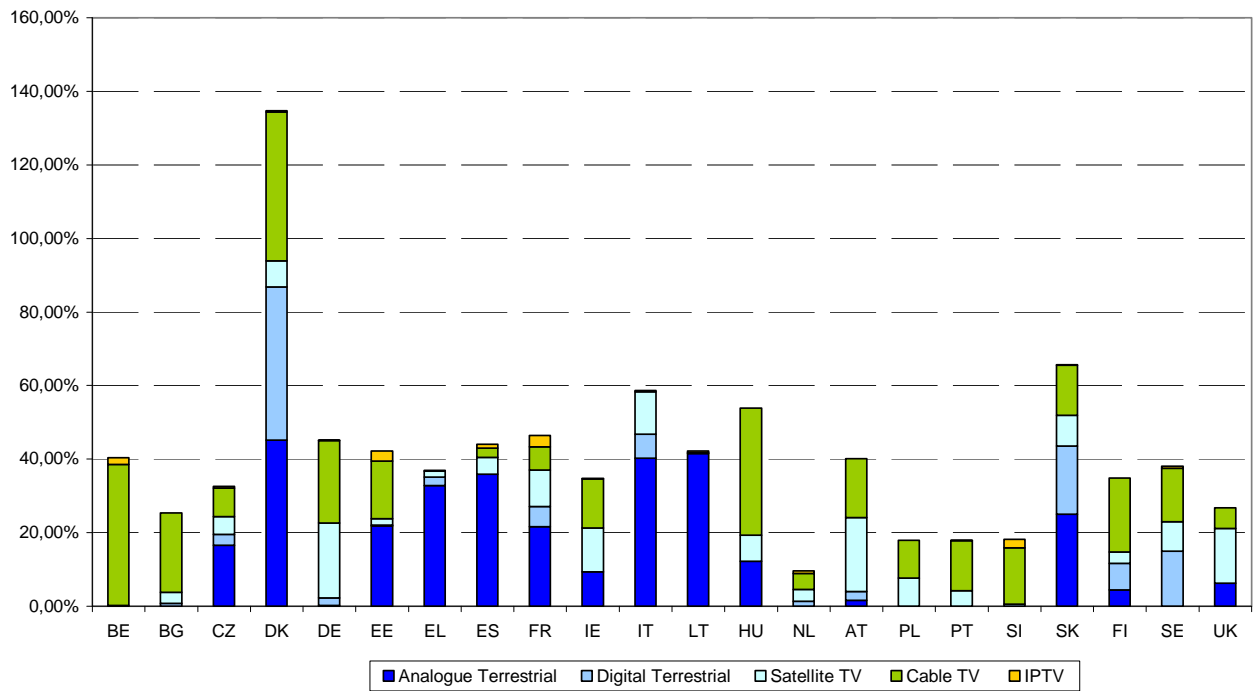
market but it provides a good perspective of the technological diversity present in the Member States.

In the first chart the number of TV connections as % of the population is presented while in the second chart only the number of IPTv connections as % of the population appears.

This section is purely indicative as not all the NRAs could submit data on all of the segments of the

**Figure 118**

**Number of TV connections as % of population, July 2007**



Belgium: Data for Terrestrial TV is not available. Data for Satellite TV includes only Pay-TV and refers to end 2006. Cable TV data refers to end 2006. IPTV refers to the end of July 2007

Bulgaria: Number of households with access to terrestrial, satellite and cable digital TV as of March 31, 2006 (last available data from the National Statistical Institute). Data for IPTV not available.

Denmark: Terrestrial TV figures are as of January 2007 Source: Broadcast Service Denmark. Satellite TV is defined as a TV signal derived from a satellite dish. Source: TNS Gallup annual survey third quarter 2006. The numbers of Cable TV and IPTV are valid given the assumption that one subscriptions corresponds to exactly one TV household

Germany: Data as of January.2007 - Source: SES ASTRA

Greece: National Statistical Service of Greece (Research on the use of Information and Communication Technologies).for IPTV Source: EETT, based on data provided by the licensed operators.

France: ARCEP does not gather such data. Source: Etude Médiamétrie Q2 2007 "référence des équipements multimédia"

Ireland: Analogue Terrestrial TV refers to free to air. Satellite TV data is based on Sky's publicly available figures. Cable TV data includes MMDS and Cable. IPTV is an estimate figure. Ireland has no digital terrestrial subscribers although there is a limited trial with 500 users being carried out in the north-east region in 2007 and 2008.

Lithuania: Almost 100% of households have the possibility to watch analogue TV programs (1.41 mill.). 96 households have subscriptions to encoded DVB-T programs; 554 thousand households have the possibility to watch digital DVB-T. Information about satellite TV – not available

Luxembourg: Estimations, Terrestrial TV Households, analogue and digital, 2007: data not available.

Netherlands: The figures are for April 2007, instead of July 2007.

Austria: Satellite TV Data and Cable TV Data referred to end of 2006. IPTV is confidential to Austrian ANR.

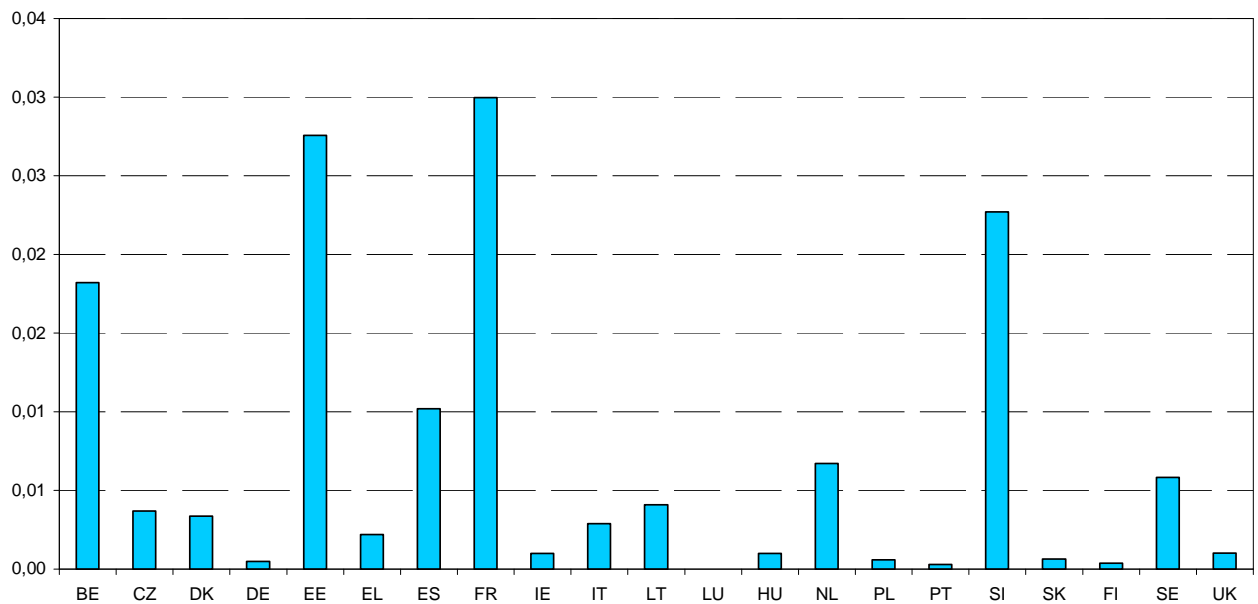
Romania: In Romania there are no digital terrestrial services available yet; the number of analogue terrestrial TV households (2.6 millions) represents an estimation of the number of TV households that use only a terrestrial antenna for receiving TV programmes, based on the total number of TV households excluding cable TV, DTH TV and IPTV subscriptions; satellite TV households refers only to the number of DTH subscriptions.

Slovakia: IPTV refers to a specific service for the incumbent operator.

Sweden: All data refers to the end of 2006

**Figure 119**

**Number of IPTV subscriptions as % of the population with IPTV, July 2007**



## 6 LEASED LINES RETAIL TARIFFS

This section contains an overview of prices charged by incumbent operators to end users in each Member State for national line services as at 1 September 2007. Figures do not cover wholesale prices. Price developments are also analysed over the period August 1998 - September 2007.

### 6.1. INCUMBENTS' NATIONAL LEASED LINES

National leased line data is provided for 2006 and 2007. Two distances are covered: 2 km (local circuits), and 200 km. Tariffs are taken from the incumbent operator in each country. Other operators may offer other prices. In order to properly reflect the tariff

The figures and the information are taken from a study carried out by Teligen, Harris Interactive UK Ltd. for the Commission. Data on standard retail prices charged by incumbent operators have been collected in each country.

structures used in some countries, the circuits may be considered in one of two different ways, depending on tariff structure. The one to apply will differ from carrier to carrier. The principles used in this report for calculating the price of a full circuit are:

	1: When tariff specifies local tail prices separately, in addition to main circuit.		2: When tariff specifies a single price for the circuit, end to end, including local tails.	
	Local tail length	Main circuit length	Local tail length	Main circuit length
2 km circuit	1 km	0	0	2 km
200 km circuit	2 km	196 km	0	200 km

Note: The local tail length is per tail, i.e. there will be 2 such tails with each circuit.

Where several tariff options exist depending on type of location, the criteria for choice is as follows:

- 2 km circuits are always within a major city (usually the capital city)
- 200 km circuits are between a major city and a “minor” city

As the definitions vary between countries, the type of tariff option chosen will also vary (see details below). The countries where the price may vary with location or other non-distance related definitions are: Belgium, France, Austria, Finland, Sweden and the United Kingdom.

Some operators apply termination charges per local end, without necessarily covering the local tail circuit within that charge.

4 types of circuits are covered: 64 kbit/s, 2 Mbit/s, 34 Mbit/s and 155 Mbit/s. As not all carriers publish tariffs for all these bitrates and all years, there may be some gaps in the information, especially for higher bitrates.

Some carriers offer 2 Mbit/s circuits as both structured and unstructured. In this analysis only unstructured circuits are included.

Also, some carriers offer different types of leased lines, often in the form of “basic circuits” and circuits in a managed network. Only “basic circuits” are included in this analysis, as the managed network services are not comparable between carriers.

Lately a few carriers have decided not to publish their prices for some or all types of leased lines. This makes it increasingly difficult to present a full overview of the prices in all 27 EU countries.

The bitrates of leased lines offered in some countries may be different from the ones found in most EU Member States. Some operators may offer 56 kbit/s instead of 64 kbit/s, 1.5 Mbit/s instead of 2 Mbit/s, 45 or 50 Mbit/s instead of 34 Mbit/s, and 140 or 150 Mbit/s instead of 155 Mbit/s. Prices shown in the tables and graphs in this section of the report have been adjusted according to the difference in capacity.

All prices are presented in EURO per year, excluding VAT. National leased lines prices as at 1 September 2007.

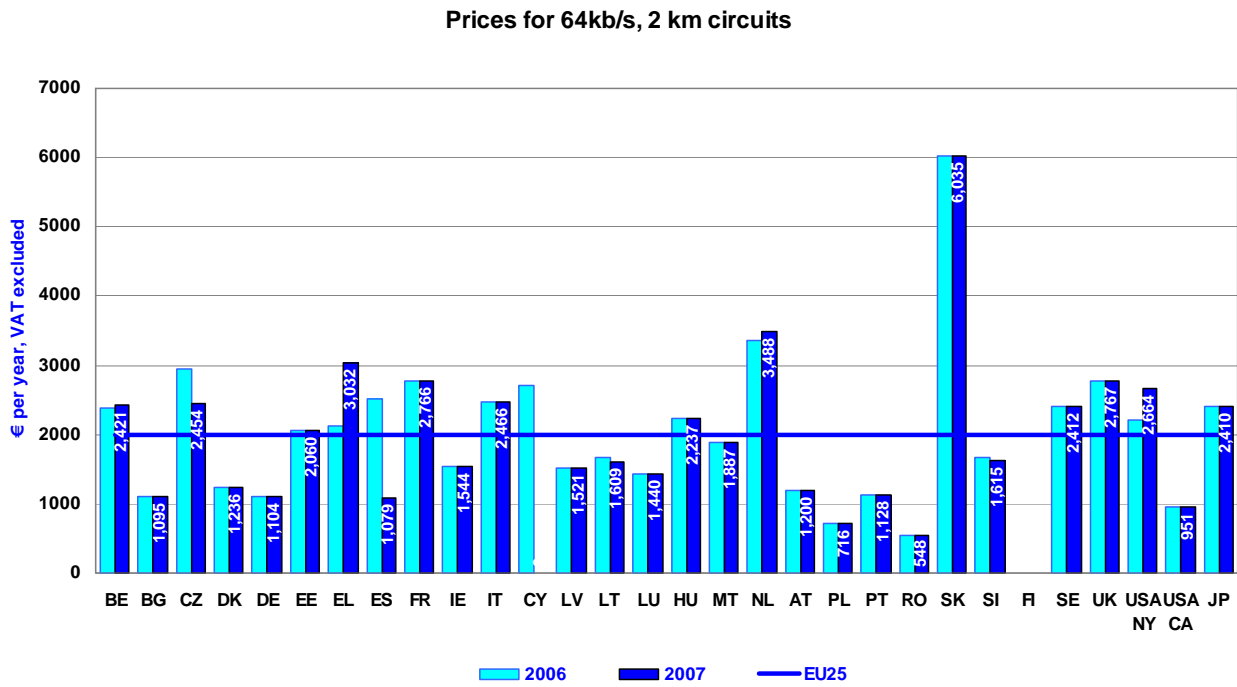
The validity dates of the tariffs used in this section are:

	Valid date		Valid date		Valid date
Belgium	01/01/07	Italy	01/11/03	Portugal	01/09/06
Bulgaria	01/01/07	Cyprus	01/01/06	Romania	01/06/04
Czech Republic	15/03/07	Latvia	01/06/99	Slovenia	01/10/06
Denmark	01/07/07	Lithuania	No date	Slovakia	01/09/07
Germany	01/07/06	Luxembourg	01/05/07	Finland	No data
Estonia	15/06/06	Hungary	01/01/02	Sweden	No change
Greece	01/06/06	Malta	01/12/04	United Kingdom	01/01/04
Spain	No date	Netherlands	01/04/06	Japan	01/01/05
France	01/06/07	Austria	01/09/01	USA, NY	01/01/07
Ireland	10/03/06	Poland	01/02/06	USA, CA	12/03/03

Leased Lines Tariffs

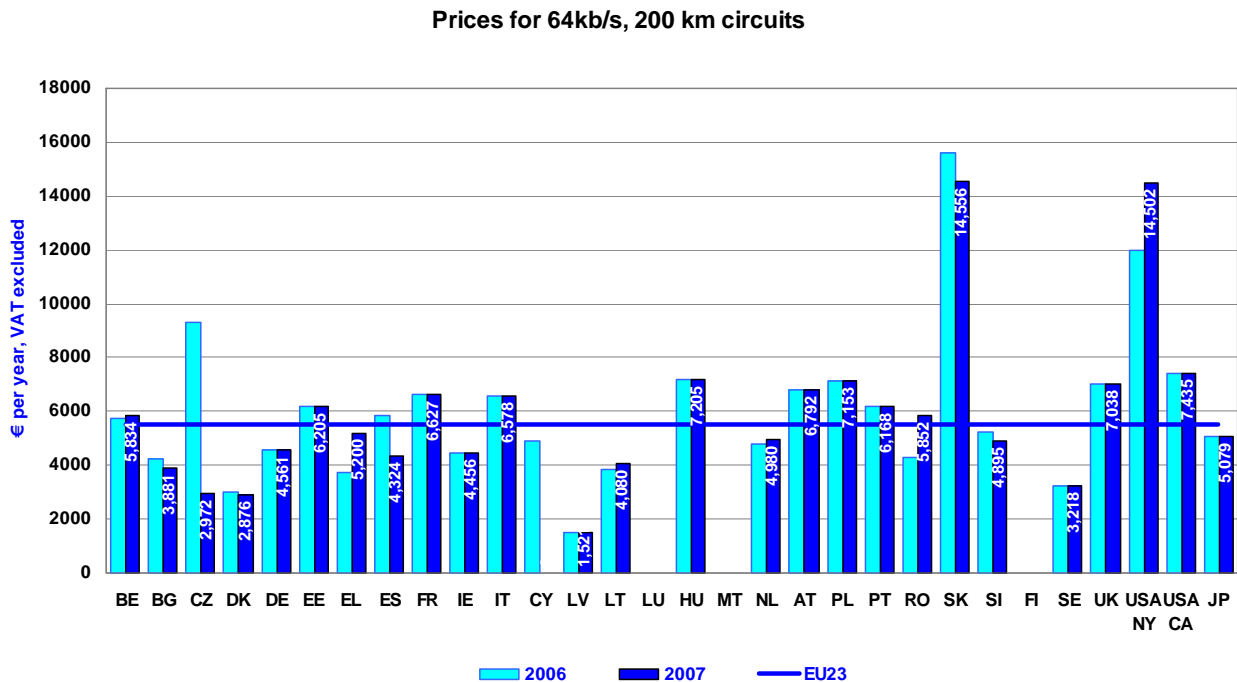
6.1.1. 64 Kbit/s

Figure 120



Blue line represents EU average=€1 994  
Cyprus, Finland – no data

Figure 121



Blue line represents EU average= €5 521  
Cyprus, Luxembourg, Malta, Finland – no data

6.1.2. 2 MBit/sec

Figure 122

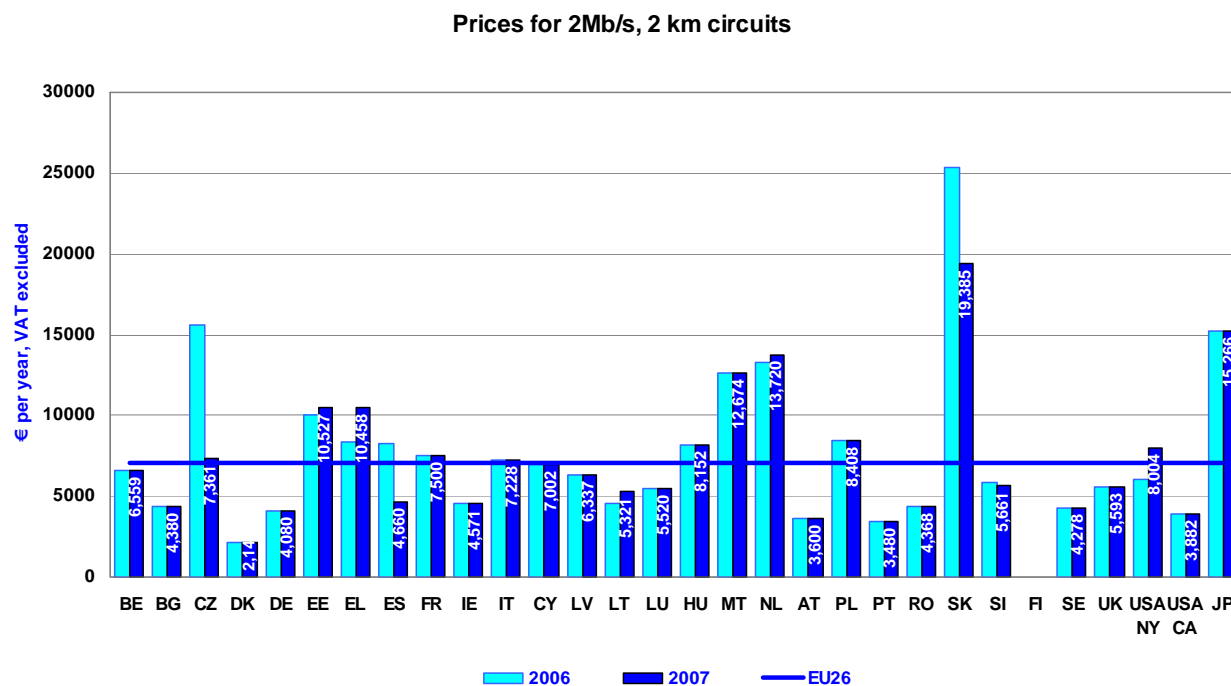
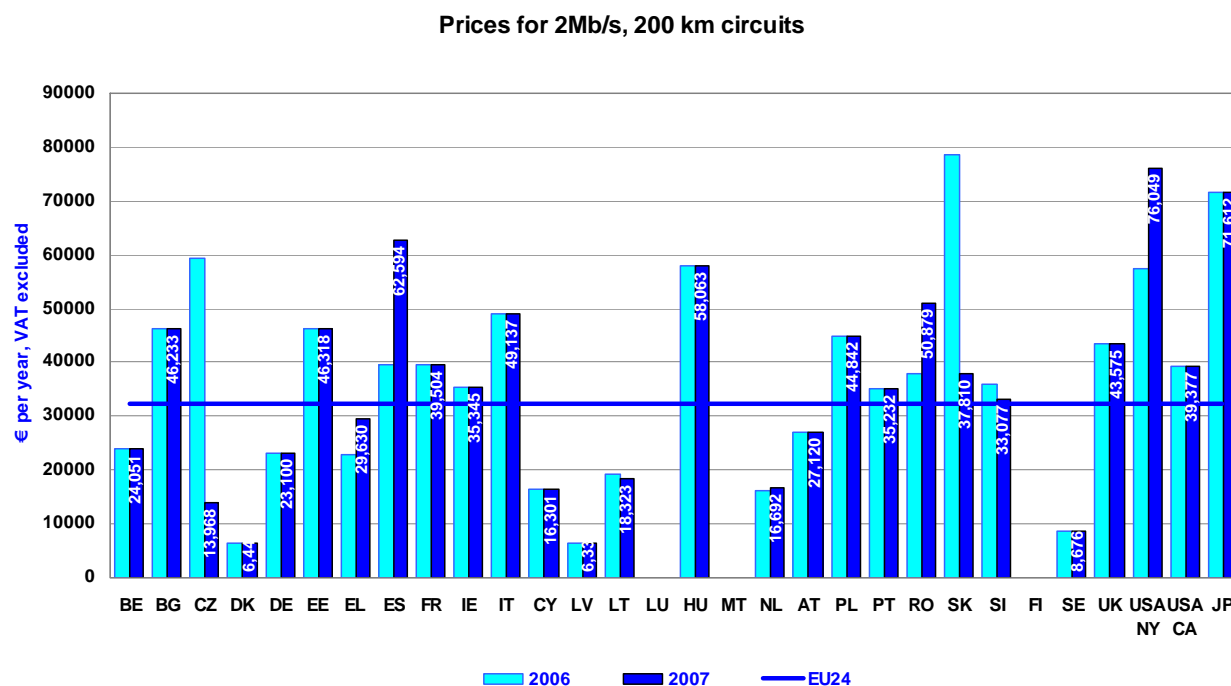
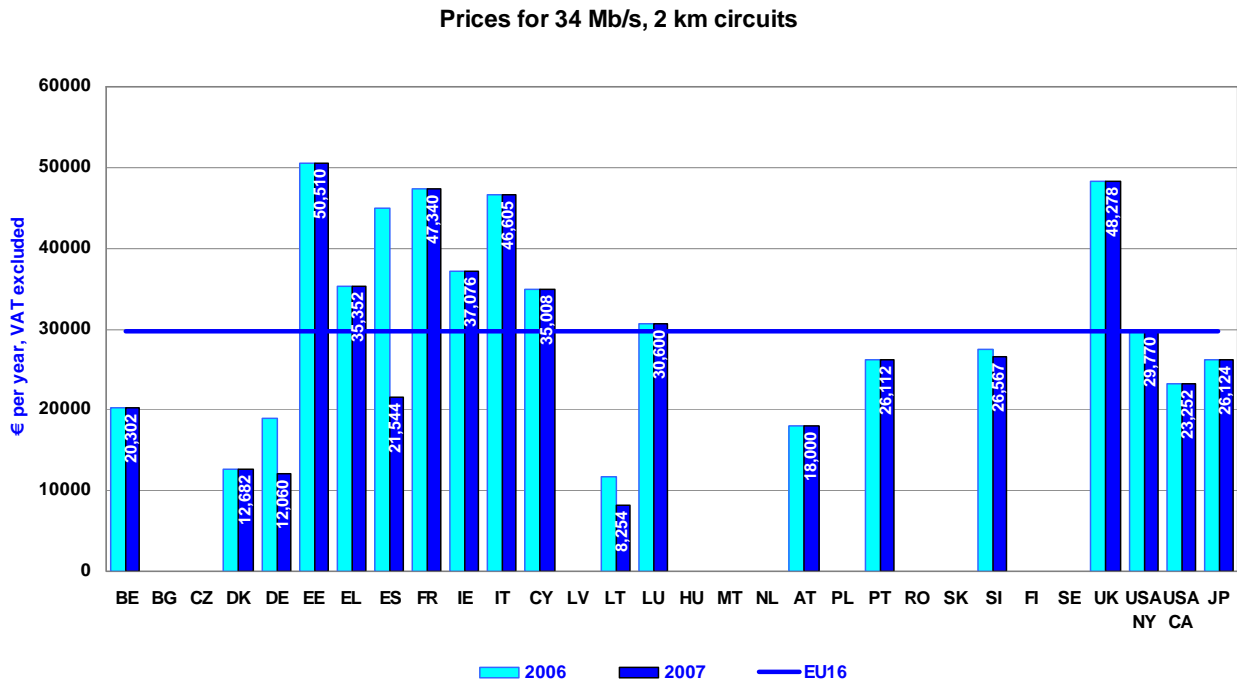


Figure 123



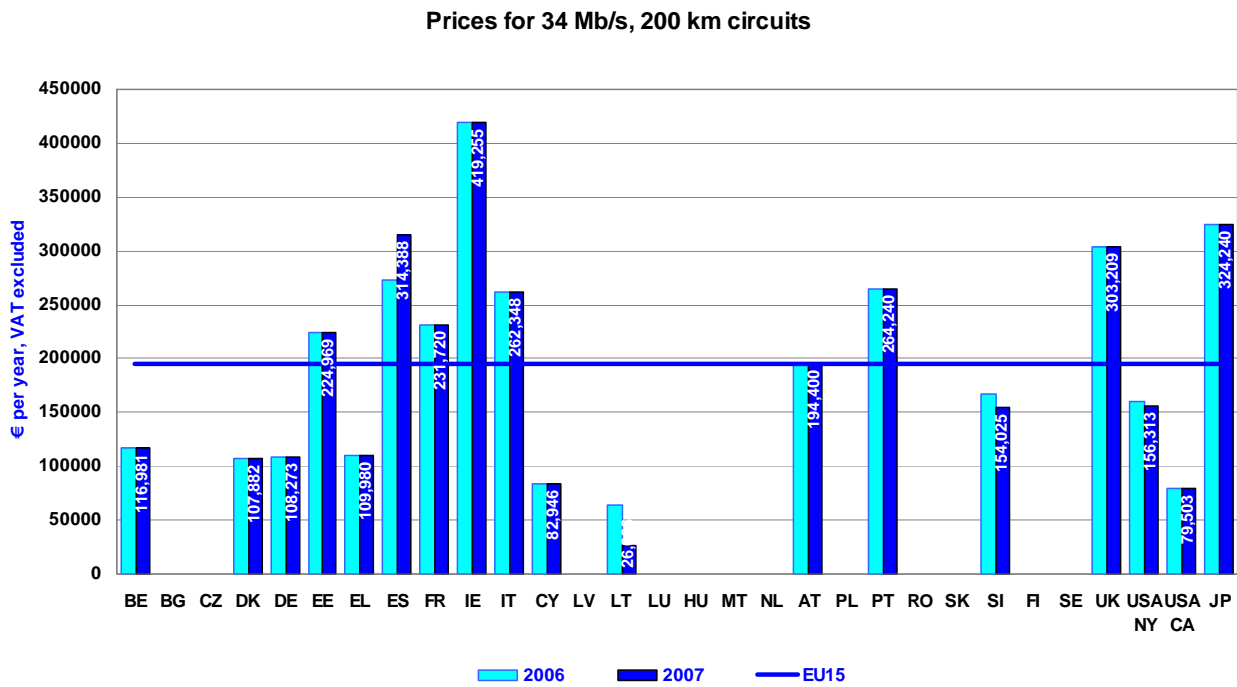
6.1.3. 34 Mbit/s

Figure 124



Bulgaria, Czech Republic, Latvia, Hungary, Malta, Netherlands, Poland, Romania, Slovakia, Finland, Sweden – no data

Figure 125

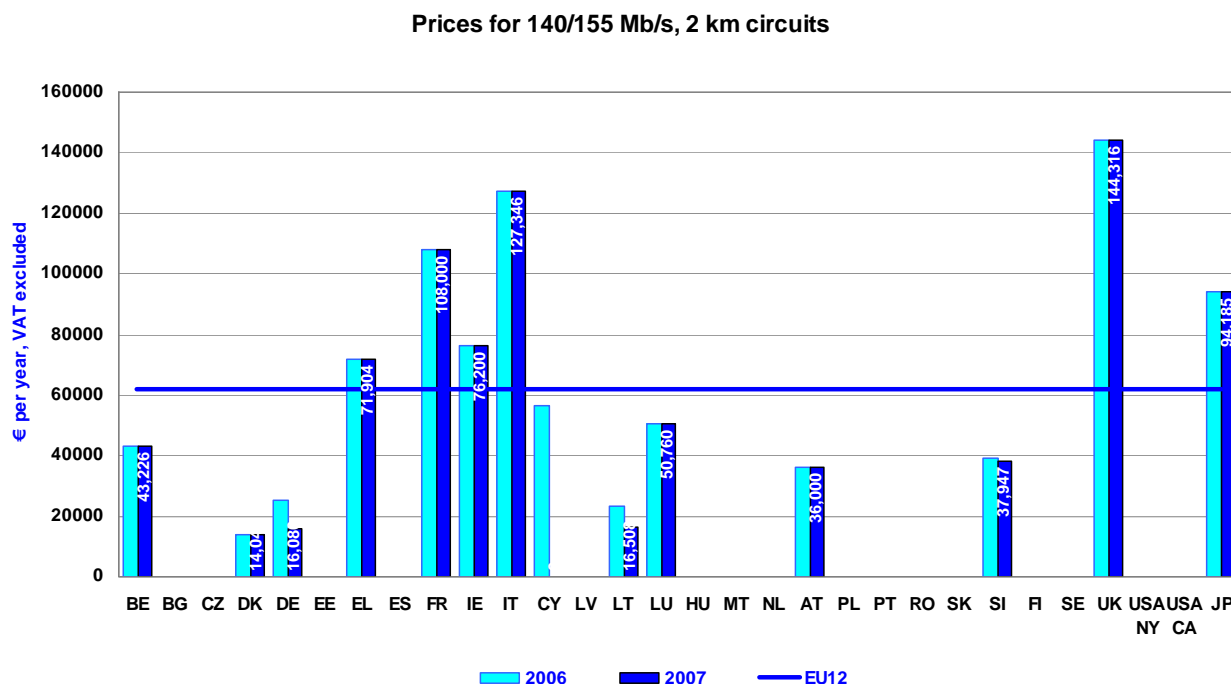


Bulgaria, Czech Republic, Latvia, Hungary, Malta, Netherlands, Poland, Romania, Slovakia, Finland, Sweden – no data



6.1.4. 155 Mbit/s

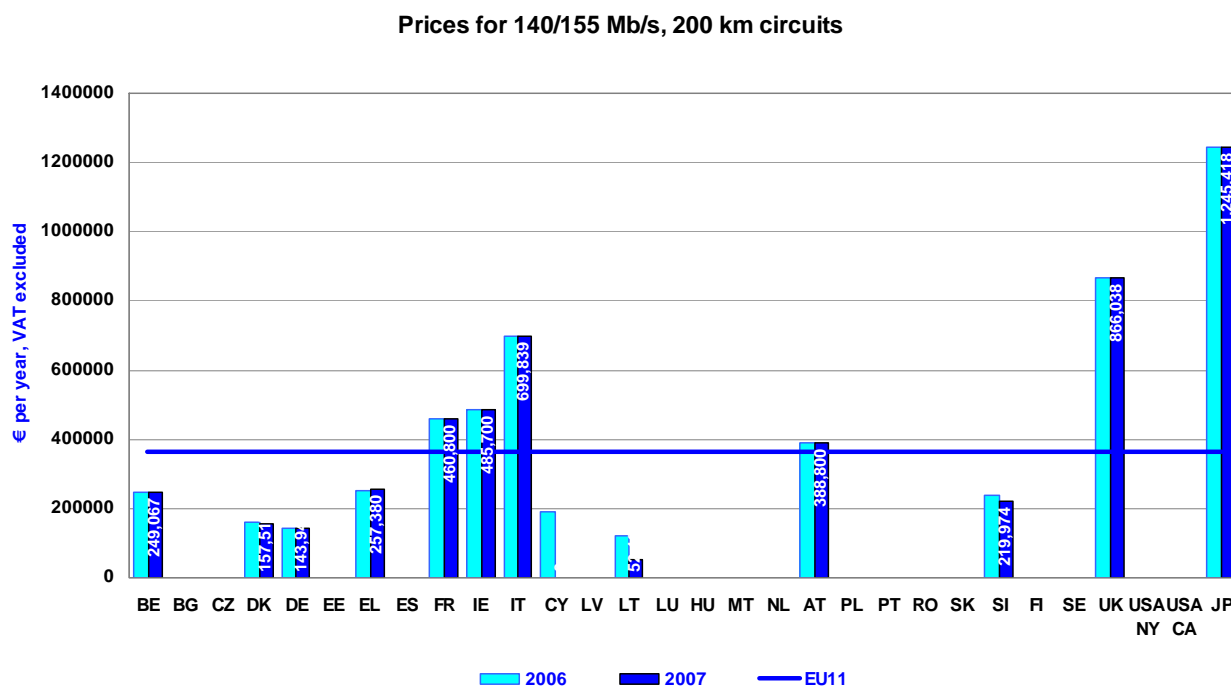
Figure 126



Blue line represents EU average= €61 861

Bulgaria, Czech Republic, Estonia, Spain, Cyprus, Latvia, Hungary, Malta, Netherlands, Poland, Romania, Slovakia, Finland, Sweden- no data

Figure 127



Blue line represents EU average= €361 926

Bulgaria, Czech Republic, Estonia, Spain, Cyprus, Latvia, Hungary, Malta, Netherlands, Poland, Romania, Slovakia, Finland, Sweden- no data

6.2. NATIONAL LEASED LINES PRICE TRENDS (1 AUGUST 1998 - 1 SEPTEMBER 2007)

Figure 128

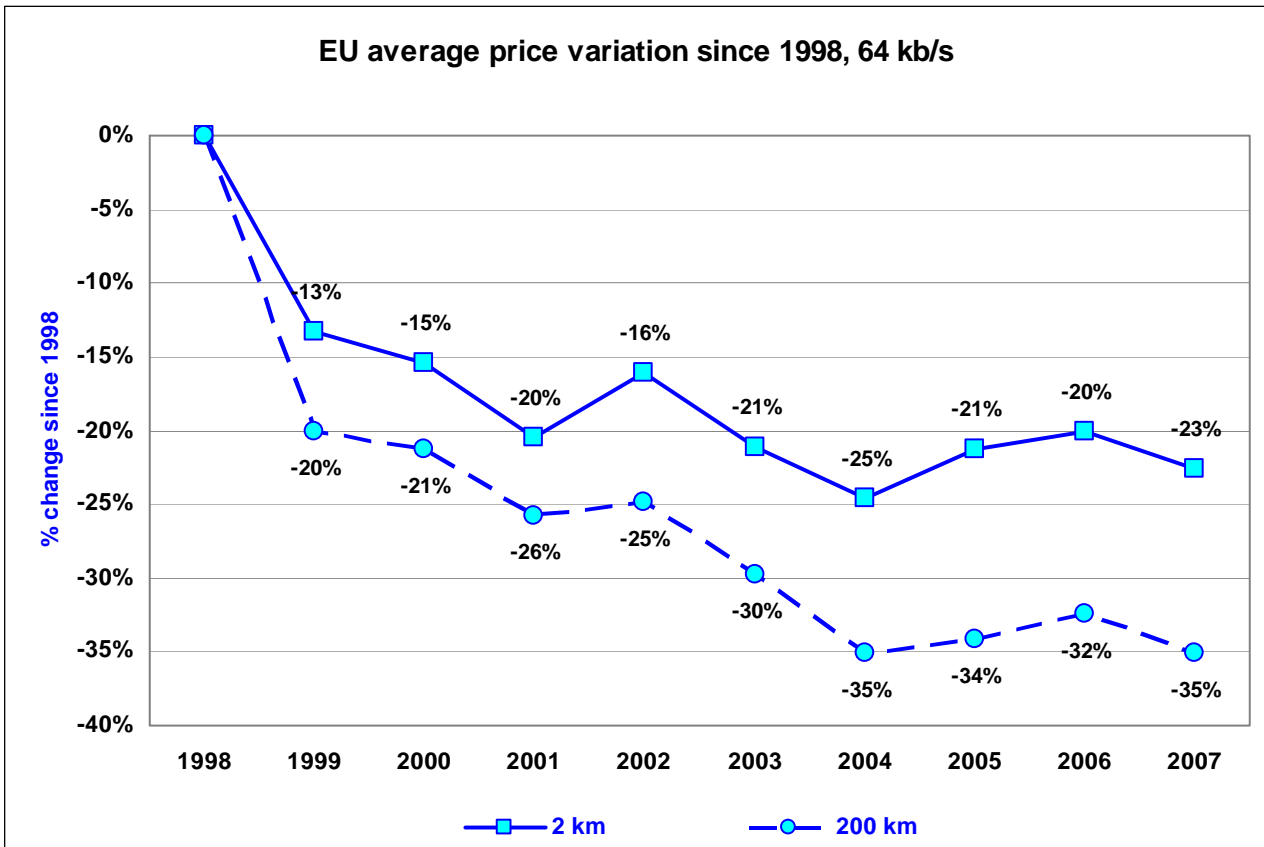


Figure 129

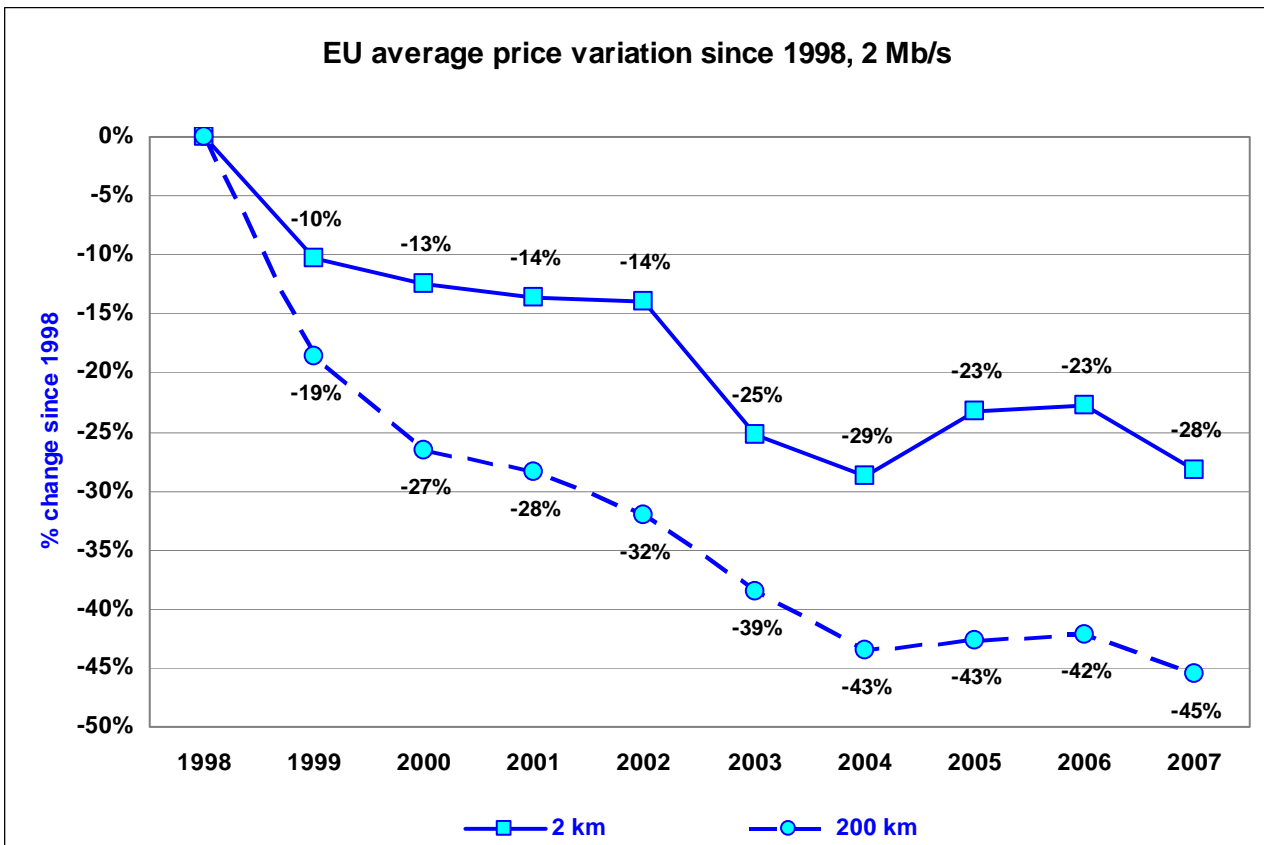


Figure 130

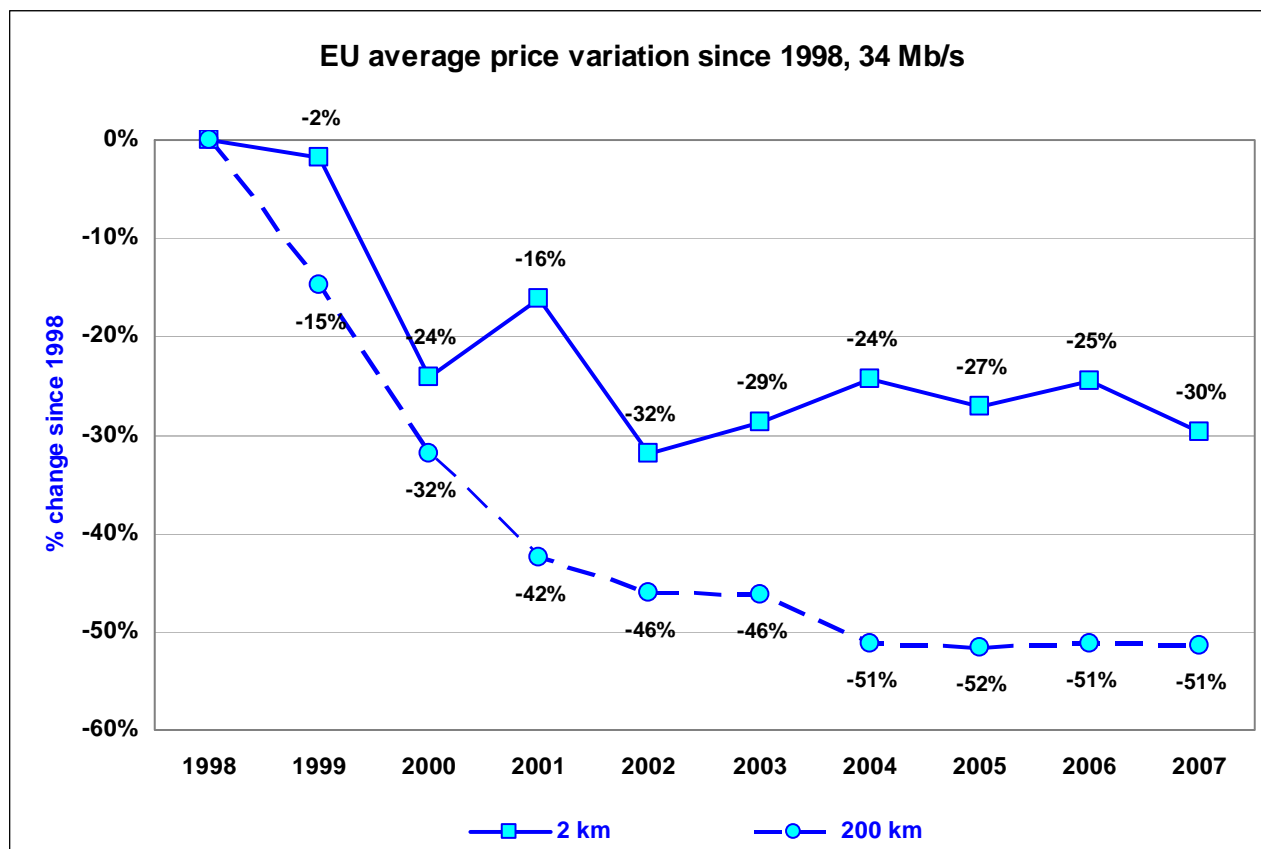
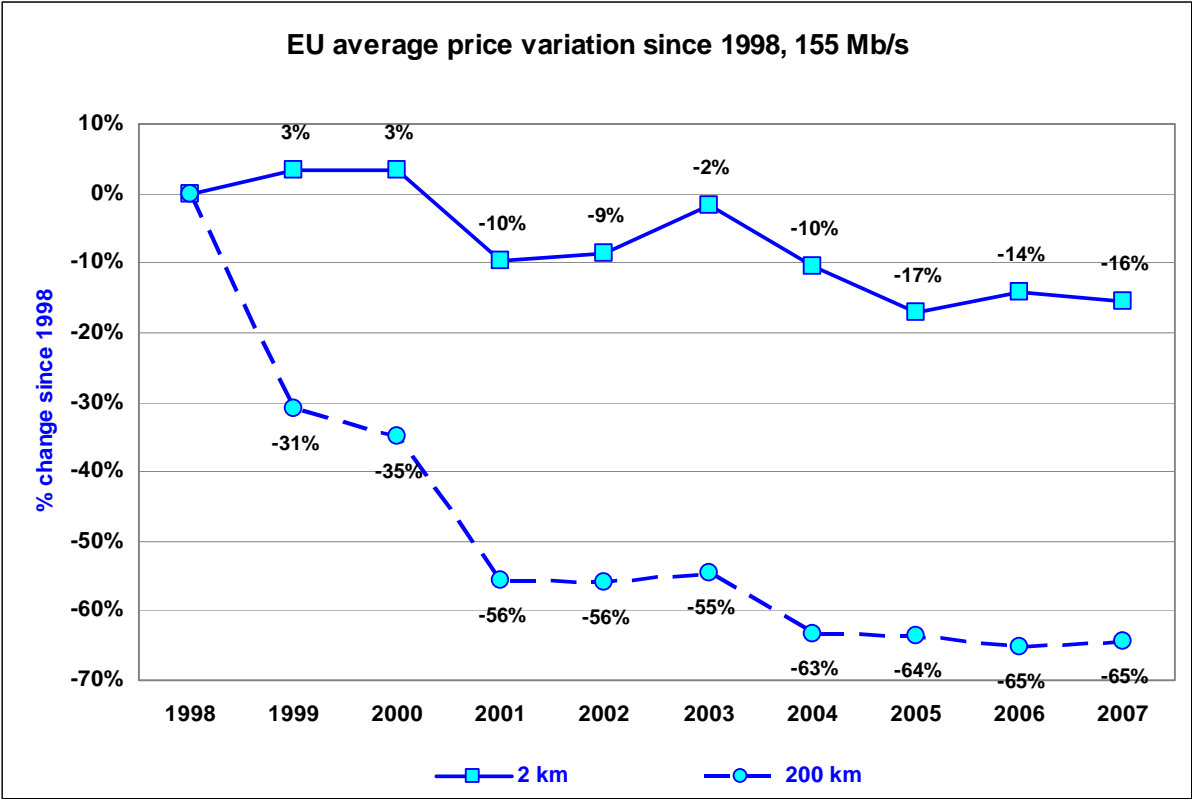


Figure 131



<b>7 EXCHANGE RATES AND POPULATION</b>
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**7.1. EXCHANGE RATE USED (EXCEPT RETAIL TARIFFS).**

<b>Belgium</b>	1,0000
<b>Bulgaria</b>	1,9558
<b>CZ</b>	27,5380
<b>DK</b>	7,4549
<b>DE</b>	1,0000
<b>EE</b>	15,6466
<b>EL</b>	1,0000
<b>ES</b>	1,0000
<b>FR</b>	1,0000
<b>IE</b>	1,0000
<b>IT</b>	1,0000
<b>CY</b>	0,5842
<b>LV</b>	0,7040
<b>LT</b>	3,4528
<b>LU</b>	1,0000
<b>HU</b>	251,4200
<b>MT</b>	0,4293
<b>NL</b>	1,0000
<b>AT</b>	1,0000
<b>PL</b>	3,7700
<b>PT</b>	1,0000
<b>RO</b>	3,3565
<b>SI</b>	239,6400
<b>SK</b>	33,9230
<b>FI</b>	1,0000
<b>SE</b>	9,1940
<b>UK</b>	0,6974
<b>Source</b>	<i>EXCH RATE as of 1st October 07 (<a href="http://www.ecb.eu">www.ecb.eu</a>) Slovenia joined the Euro the 1st of January 2007</i>

**7.2. EXCHANGE RATE USED FOR RETAIL TARIFFS**

(on the mobile tariff - section 4, public voice telephony tariffs - section 9 and leased line tariffs - section 10).

<b>Belgium</b>	<i>1</i>
<b>Bulgaria</b>	<i>0.50695</i>
<b>Czech Republic</b>	<i>0.03600</i>
<b>Denmark</b>	<i>0.13434</i>
<b>Germany</b>	<i>1</i>
<b>Estonia</b>	<i>0.06390</i>
<b>Greece</b>	<i>1</i>
<b>Spain</b>	<i>1</i>
<b>France</b>	<i>1</i>
<b>Ireland</b>	<i>1</i>
<b>Italy</b>	<i>1</i>
<b>Cyprus</b>	<i>1.70853</i>
<b>Latvia</b>	<i>1.40825</i>
<b>Lithuania</b>	<i>0.28962</i>
<b>Luxembourg</b>	<i>1</i>
<b>Hungary</b>	<i>0.00387</i>
<b>Malta</b>	<i>2.30097</i>
<b>Netherlands</b>	<i>1</i>
<b>Austria</b>	<i>1</i>
<b>Poland</b>	<i>0.25950</i>
<b>Portugal</b>	<i>1</i>
<b>Romania</b>	<i>0.30358</i>
<b>Slovenia</b>	<i>1</i>
<b>Slovakia</b>	<i>0.02959</i>
<b>Finland</b>	<i>1</i>
<b>Sweden</b>	<i>0.10674</i>
<b>UK</b>	<i>1.47189</i>
<b>Japan</b>	<i>0.00628</i>
<b>USA</b>	<i>0.73099</i>

**7.3. POPULATION**

	<b>2006</b>	<b>2007</b>
<b>BE</b>	10 511 400	10511382
<b>BG</b>		7679290
<b>CZ</b>	10 251 100	10287189
<b>DK</b>	5 427 500	5447084
<b>DE</b>	82 455 800	82310995
<b>EE</b>	1 344 700	1342409
<b>EL</b>	11 122 900	11170957
<b>ES</b>	43 758 300	44474631
<b>FR</b>	62 886 200	63392140
<b>IE</b>	4 209 000	4209019

<b>IT</b>	58 751 700	59131287
<b>CY</b>	766 400	778537
<b>LV</b>	2 294 600	2281305
<b>LT</b>	3 403 300	3384879
<b>LU</b>	459 500	459500
<b>HU</b>	10 076 600	10064000
<b>MT</b>	404 400	406020
<b>NL</b>	16 335 500	16357992
<b>AT</b>	8 265 900	8298923
<b>PL</b>	38 157 100	38125479
<b>PT</b>	10 569 600	10599095
<b>RO</b>		21565119
<b>SI</b>	2 003 400	2010377
<b>SK</b>	5 389 200	5393637
<b>FI</b>	5 255 600	5276955
<b>SE</b>	9 047 800	9113257
<b>UK</b>	60 416 200	60798438
<b>EU</b>	463563700 <sup>4</sup>	494869896

Source: Eurostat web site as of 1.10.2007

#### 7.4. POPULATION BROADBAND DATA (SECTION 6)

	<b>2006 Broadband data</b>	<b>2007 Broadband data</b>
<b>BE</b>	10511400	10584534
<b>BG</b>	7718750	7679290
<b>CZ</b>	10251100	10287189
<b>DK</b>	5427500	5447084
<b>DE</b>	82455800	82314906
<b>EE</b>	1344700	1342409
<b>EL</b>	11122900	11171740

<sup>4</sup> Population of Bulgaria and Romania is not taken into account for 2006 purposes, as the official date of their adhesion to EU was 1 January 2007).

## Exchange rate and population

<b>ES</b>	43758300	44474631
<b>FR</b>	62886200	63392140
<b>IE</b>	4209000	4314634
<b>IT</b>	58751700	59131287
<b>CY</b>	766400	778684
<b>LV</b>	2294600	2281305
<b>LT</b>	3403300	3384879
<b>LU</b>	459500	476187
<b>HU</b>	10076600	10066158
<b>MT</b>	404400	407810
<b>NL</b>	16335500	16357992
<b>AT</b>	8265900	8298923
<b>PL</b>	38157100	38125479
<b>PT</b>	10569600	10599095
<b>RO</b>	21610213	21565119
<b>SI</b>	2003400	2010377
<b>SK</b>	5389200	5393637
<b>FI</b>	5255600	5276955
<b>SE</b>	9047800	9113257
<b>UK</b>	60416200	60852828
<b>EU</b>	492892663	495128529



## 8 OECD TELECOMMUNICATIONS BASKET DEFINITIONS

### 8.1. COMPOSITE NATIONAL – INTERNATIONAL BASKET

This basket is based on a combination of the national and international baskets. The international basket is scaled using a fixed number of international calls.

Business basket results exclude VAT. Residential basket results include VAT.

The number of calls to fixed line phones (i.e. excluding calls to mobile phones) is defined as:

<b>Number of national fixed line calls</b>	<b>Calls per year</b>
Business basket	3600
Residential basket	1200

The international portion of the basket shall have a number of calls equal to 6% of the national fixed line calls, in addition to the calls defined in the national portion of the basket.

	<b>International calls per year</b>
Business basket	216
Residential basket	72

Calls to mobile phones are added to the basket. The number of calls shall be 10% of the number of national fixed line calls, in addition to the fixed line calls.

<b>Calls to mobile phones</b>	<b>Calls per year</b>	<b>Call duration</b>
Business basket	360	2
Residential basket	120	2

Call duration in minutes per call.

A weighted distribution over six time and day points is used. Call charges relevant at each of these time and day points shall be used.

Day/Time	We 11:00	We 15:00	We 20:00	We 03:00	Sa 11:00	Su 15:00
Bus	45.4	40.6	7	0.8	5.7	0.5
Res	14.3	22.1	31.6	3	13	16

Bus = Business basket, Res = Residential basket. All weights in percent of total number of fixed line calls.

We = Weekdays, Sa = Saturdays, Su = Sundays.

Call duration will vary with distance and time of day. The charge for each call shall reflect the actual charge for the duration in question, as defined by the tariff. Call setup and minimum charges shall be included.

<b>Day/Time</b>	<b>Weekday daytime</b>			<b>Weekday evenings, nights and weekends</b>		
	3-12 Km	17-40 Km	40-490 km	3-12 km	17-40 Km	40-490 Km
Bus	3.5	3.5	3.5	3.5	3.5	3.5
Res	2.5	3.5	3.5	3.5	6	7

Bus = Business basket, Res = Residential basket. Duration in minutes per call.

**8.2. NEW OECD BASKETS FOR PSTN 2006**

Number of calls per year

<b>Number of calls per year</b>	National calls	Calls to mobile	International calls	Total calls
OECD Residential basket, Low Usage	456	114	30	600
OECD Residential basket, Medium Usage	900	276	24	1200
OECD Residential basket, High Usage	1560	744	96	2400
OECD Business basket, SOHO	1206	522	72	1800
OECD Business basket, SME	2016	560	224	2800

The SME basket shall also reflect 30 lines and users.

Distribution over time

<b>Fixed call distribution over time</b>	We 11.00	We 15.00	We 20.00	We 03.00	Sa 11.00	Su 15.00
OECD Residential basket, Low Usage	30.2%	28.1%	23.6%	0.9%	8.2%	9.0%
OECD Residential basket, Medium Usage	27.5%	28.0%	23.0%	2.0%	8.0%	11.5%
OECD Residential basket, High Usage	30.0%	30.4%	20.0%	0.6%	8.5%	10.5%
OECD Business basket, SOHO	39.5%	39.3%	7.5%	3.6%	5.5%	4.6%
OECD Business basket, SME	40.2%	40.5%	6.5%	3.4%	4.7%	4.7%

<b>Mobile call distribution over time</b>	We 11.00	We 15.00	We 20.00	We 03.00	Sa 11.00	Su 15.00
OECD Residential basket, Low Usage	28.6%	28.6%	20.5%	0.6%	10.1%	11.6%
OECD Residential basket, Medium Usage	29.1%	30.5%	20.5%	0.7%	8.5%	10.7%
OECD Residential basket, High Usage	30.0%	30.4%	20.0%	0.6%	8.5%	10.5%
OECD Business basket, SOHO	39.5%	39.5%	4.5%	0.3%	9.0%	7.2%
OECD Business basket, SME	44.0%	42.0%	1.2%	0.1%	6.3%	6.4%

Distribution over distance

<b>Fixed call distribution over distance</b>	3 km	7 km	12 km	17 km	22 km	27 km	40 km
OECD Residential basket, Low Usage	62.0%	14.5%	5.2%	3.1%	1.6%	2.1%	2.1%
OECD Residential basket, Medium Usage	56.7%	13.3%	4.7%	2.8%	1.4%	3.2%	3.2%
OECD Residential basket, High Usage	63.0%	14.7%	5.2%	3.1%	1.6%	1.9%	1.9%
OECD Business basket, SOHO	55.5%	13.0%	4.6%	2.9%	1.5%	3.3%	3.3%
OECD Business basket, SME	57.2%	13.4%	4.9%	3.0%	1.5%	3.0%	3.0%

<b>Fixed call distribution over distance</b>	75 km	110 km	135 km	175 km	250 km	350 km	490 km
OECD Residential basket, Low Usage	2.1%	1.2%	1.0%	0.8%	0.8%	0.6%	2.9%
OECD Residential basket, Medium Usage	3.2%	1.9%	1.6%	1.3%	1.3%	1.0%	4.4%
OECD Residential basket, High Usage	1.9%	1.1%	0.9%	0.7%	0.7%	0.6%	2.7%
OECD Business basket, SOHO	3.3%	2.0%	1.7%	1.4%	1.4%	1.1%	5.0%
OECD Business basket, SME	3.0%	1.8%	1.5%	1.2%	1.2%	0.9%	4.4%

## Call durations in minutes

<b>Call durations 3-22 km</b>	We 11.00	We 15.00	We 20.00	We 03.00	Sa 11.00	Su 15.00
OECD Residential basket, Low Usage	3.7	3.7	4.7	4.7	4.5	4.5
OECD Residential basket, Medium Usage	3.7	3.7	4.7	4.7	4.5	4.5
OECD Residential basket, High Usage	3.7	3.7	4.7	4.7	4.5	4.5
OECD Business basket, SOHO	1.9	1.9	2.1	2.1	2.3	2.3
OECD Business basket, SME	1.9	1.9	2.1	2.1	2.3	2.3
<b>Call durations &gt;22 km</b>	We 11.00	We 15.00	We 20.00	We 03.00	Sa 11.00	Su 15.00
OECD Residential basket, Low Usage	4.4	4.4	7	7	6.6	6.6
OECD Residential basket, Medium Usage	4.4	4.4	7	7	6.6	6.6
OECD Residential basket, High Usage	4.4	4.4	7	7	6.6	6.6
OECD Business basket, SOHO	2.2	2.2	3	3	3.1	3.1
OECD Business basket, SME	2.2	2.2	3	3	3.1	3.1
<b>Call durations to mobile</b>	We 11.00	We 15.00	We 20.00	We 03.00	Sa 11.00	Su 15.00
OECD Business basket, SME	1.8	1.8	2.1	2.1	1.9	1.9
OECD Business basket, SME	1.8	1.8	2.1	2.1	1.9	1.9
OECD Business basket, SME	1.8	1.8	2.1	2.1	1.9	1.9
OECD Residential basket, Low Usage	1.6	1.6	1.7	1.7	1.7	1.7
OECD Residential basket, Medium Usage	1.6	1.6	1.7	1.7	1.7	1.7

## International calls

<b>International calls</b>	Distribution		Call duration (minutes)	
	Peak	Off-peak	Peak	Off-peak
OECD Residential basket, Low Usage	33%	67%	5.5	7.2
OECD Residential basket, Medium Usage	33%	67%	5.5	7.2
OECD Residential basket, High Usage	33%	67%	5.5	7.2
OECD Business basket, SOHO	80%	20%	2.9	3.9
OECD Business basket, SME	80%	20%	2.9	3.9

**8.3. INTERNATIONAL PSTN BASKET**

The international PSTN basket, when used separately, shall reflect the cost of a single call, calculated according to the weighting method described below. No fixed charges are included.

Business basket results exclude VAT. Residential basket results include VAT.

Call charges for calls to all other OECD Member States shall be used. Peak and off-peak time call charges are used, defined as the highest (most expensive) charge and the lowest (least expensive) charge.

Call cost is based on average per minute charge. Call setup charges and/or different charges for first and additional minutes are included.

The charges to different destinations are weighted according to the ITU call volume statistics. An average over the latest 5 years of available traffic statistics is used. As there may be gaps in the ITU statistics for certain destinations from some countries, calls on such routes are excluded from the calculation.

Call charges are weighted between peak and off-peak:

	<b>Peak time weight</b>	<b>Off-peak time weight</b>
Business basket	75.0 %	25.0 %
Residential Basket	25.0 %	75.0 %

Call duration differ between peak and off-peak time:

	<b>Peak time</b>	<b>Off-peak time</b>
Business basket	3 minutes	5 minutes
Residential Basket	3 minutes	5 minutes

#### 8.4. NEW OECD MOBILE BASKETS 2006

The basket structure remains the same as with the previous (2002) version of the baskets. All baskets will include:

Registration or installation charges with 1/3 of the charges, i.e. distributed over 3 years.

Monthly rental charges, and any option charges that may apply to the package, or package combination.

Usage charges for voice calls and SMS and MMS message, as defined by the usage profile.

The three baskets are:

Low user basket. The usage level of this basket is low, with a call volume less than half of that in the Medium user basket.

Medium user basket. This basket will have 65 outgoing calls per month.

High user basket. The usage level is about twice the Medium user basket.

The usage profiles will also include a number of SMS and MMS messages per month. The number of MMS is low, reflecting a new service with still little use.

Call and message volumes for each basket are:

	Outgoing calls /month	SMS per month	MMS per month
Low user	30	33	0.67
Medium user	65	50	0.67
High user	140	55	1

There is little difference between the average pre-paid usage and the low user post-paid usage. The low user basket can therefore be used for both pre- and post-paid tariffs, allowing a simple comparison also between the two types.

Only national calls are included in the profiles, with 5 different destinations:

Local area fixed line calls. This is used to accommodate the tariffs that have separate charges for the local area. When such charges are not available, this proportion of calls is included in the National.

National fixed line calls. This covers all fixed line calls outside the local area, except in cases as noted above.

Same network mobile calls (On-net). This includes all calls made to mobiles in the same mobile network as the caller.

Other network mobile calls (Off-net). This includes calls to all other mobile networks in the caller's country. When the charges are different depending on destination network, the market shares based on subscriber numbers are used for weighting the charges. Up to 3 other networks will be considered in each country.

Voicemail calls. This reflects calls made to retrieve voicemail messages from the on-net voicemail service.

Distributions per destination for each basket are:

% of total number of calls	Fixed Local	Fixed National	On-net mobile	Off-net mobile	Voicemail
Low user	15%	7%	48%	22%	8%
Medium user	14%	7%	48%	24%	7%
High user	13%	7%	47%	26%	7%

As there is little evidence on the split between local and national fixed line calls, the assumption has been used that the ratio would be 2:1 for local:national, i.e. 67% local and 33% national. This assumption is taken from the averages in fixed baskets, and the scarce information received.

Instead of splitting time and day into distinct times and days the following approach will be used:

Peak time calls at weekdays, most expensive time during daytime.

Off-peak time calls at weekdays, cheapest time before midnight.

Weekend time calls, at daytime Sundays.

Distributions over time and day for each basket are:

% of total number of calls	ToD Peak	ToD Off-peak	ToD Weekend
Low user	48%	25%	27%
Medium user	50%	24%	26%
High user	60%	19%	21%

There will be 4 separate call durations:

Local and national fixed line calls

Same network mobile calls (On-net)

Other network mobile calls (Off-net)

Voicemail calls

Call durations for each basket are:

Minutes per call	Duration National	Fixed	Duration On-net	Mobile	Duration Off-net	Mobile	Duration Voicemail
Low user	1.5		1.6		1.4		0.8
Medium user	1.8		1.9		1.7		0.8
High user	1.7		1.9		1.8		0.8

Any call allowance value included in the monthly rental will be deducted from the usage value once the basket is calculated. The deduction cannot be larger than the actual usage value, i.e. negative usage is not allowed. No transfer of unused value to next month is taken into account.

Any inclusive minutes will be deducted from the basket usage before starting the calculation of usage cost. The inclusive minutes are assumed to be used up with the same calling pattern that is described in the basket, i.e. the same peak/off-peak ratio and the same distribution across destinations. Where the inclusive minutes are clearly limited to specific destinations or times of day this will be taken into account. No transfer of unused minutes is taken into account.

Any inclusive SMS- and MMS-messages will be deducted from the basket before starting the calculation of the SMS and MMS message cost, up to the number of messages in the basket.

For each of the operators covered a set of packages shall be included so that the cheapest package offered by that operator can be calculated for each of the 3 baskets.

Multiple operators in each country shall be included, with at least the two operators with highest number of subscribers in each country. The operators included shall have a total market share of at least 50% based on subscriber numbers.

Basket results are calculated for a period of one year.