

## SECTION 4.5

### CONSUMER ISSUES

This section focuses on issues that directly concern consumers of telecommunications services.

The first subsection presents data on the quality of voice telephony services provided by incumbent operators.

The second subsection gives an overview of the availability to consumers of facilities such as carrier selection and number portability, to enable them to access services provided by new entrants.

The third and fourth subsections present a broad overview of fixed voice telephony tariffs, with information on both the level and the development of national and international telephony services provided by incumbent operators.

Finally, the fifth subsection presents data on prices for mobile services.

#### 4.5.1 - QUALITY OF SERVICE

This section provides information on the quality of voice telephony services offered by incumbent operators. It represents an attempt to enhance the transparency of quality of services provided in each EU country by incumbent operators.

The information has been collected from National Regulatory Authorities (NRAs) in EU Member States. Only a few NRAs (Denmark, Germany and Sweden) declared that the information was generally unavailable or confidential. Germany is in the process of formalising the exact specification of quality indicators to be adopted from the year 2000<sup>24</sup>.

The information collected concerns the indicators listed in Annex III to the Voice Telephony Directive (98/10/EC). A short description of those indicators is given in Table 11. For a more formal definition reference should be made to ETSI ETR 138, 1994. However, information collected by Member States is often based on standards which may differ from ETSI definitions. Furthermore, even where ETSI basic definitions have been adopted, alternative measurements may have been specified. Information in Table 12 is therefore **not comparable** across countries.

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<sup>24</sup> A document entitled “*Rules for the Application and Interpretation of ETSI ETR 138 (July 94) on the Measurement of Quality Indicators pursuant to Paragraph 32, Nos. 1-8 of the TKV*” is to be published by the end of 1999. First measured values will be reported to the end of 2000. Furthermore, a national definition and measurement of the quality indicator “Billing accuracy” was published in Decision 9/1999, RegTP Official Journal 1/99. First measured values will be reported at the beginning of 2000.

**Table 11. Description of indicators used**

<b>INDICATOR</b>	<b>DEFINITION</b>	<b>DESCRIPTION</b>
<b>1. Supply time for initial connection</b>	ETSI ETR 138, 1994	Working days/hours between valid contract and operational connection
<b>2. Fault rate per access line</b>	ETSI ETR 138, 1994	Number of valid faults reported per access line
<b>3. Fault repair time</b>	ETSI ETR 138, 1994	Working hours between fault report and service restored
<b>4. Unsuccessful call ratio</b>	ETSI ETR 138, 1994	Percentage of unsuccessful call attempts in a given period of time
<b>5. Call set up time</b>	ETSI ETR 138, 1994	Interval of time before busy tone/ringing tone/answer signal is received by the calling party
<b>6. Response time for operator services</b>	ETSI ETR 138, 1994	Time in seconds from when the last address digit is dialled to when the human operator answers
<b>7. Response time for directory enquiry services</b>	Same as previous ETSI definition	Time in seconds from when the last address digit is dialled to when the human operator answers
<b>8. Proportion of public pay-telephones in working order</b>	ETSI ETR 138	Proportion of coin and card operated public pay-telephones in working order
<b>9. Billing accuracy</b>	ETNO definition	Number of billing complaints received per 1000 bills

In Table 12, the following abbreviations are used:

- w. days = working days
- c. days = calendar days
- w. hours = working hours
- aver. = on average
- sec. = seconds

**Table 12. INCUMBENTS' VOICE TELEPHONY QUALITY INDICATORS**

INDICATORS	B	EL	E	F	IRL	I	L
Reporting period	1998	1998	June 99	1998	Jan-Nov. 98	Jan-June 98/Jul-Dec 98	Jan-June 99
<b>1. Supply time for initial connection</b> (in c. days/w. days/hours)	95.77% in 5 w. days	5 w. days aver.	8.07 c. days aver.	5.6 w. days (March 1999)	9 w. days aver.	8/9 c. days aver.	< 7 w. days aver.
<b>2. Fault rate per access line</b> (no. valid faults reported)	0.0469	0.279	0.0132	0.064	0.12	0.156 / 0.168	N/A
<b>3. Fault repair time</b> (in hours/ w. hours/ w. days)	90% before the end of following w. day	21 w. hours aver.	9.53 hours aver.	business: 16.48 w. hours residential: 23.14 w. hours	16 w. hours aver.	% of faults repaired within the 2 <sup>nd</sup> calendar day: 94.9% / 94.1%	95.97% within 16 w. hours
<b>4. Unsuccessful call ratio</b> (% of unsuccessful call attempts)							
- Local calls			0.09% / 0.13% <sup>25</sup>		0.4%	0.49% / 0.42%	
- National calls	0.24%	1.1%	0.18%	11%	1.10% (STD)	0.96% / 0.73%	0.45%
- Intra-EU	5.12%	(Athens area only)	99%		1.5%		
- Extra-EU	9.88%						
<b>5. Call set up time</b> (in seconds; average values unless specified)	N/A	All types of calls: 79.5% < 2 sec. 85% < 4 sec. 92% < 6 sec.		N/A	N/A	All types of call: 0.4 sec.	National: 0.3745 sec. Intra-EU: 1.761 sec. Extra-EU: 3.266 sec.
<b>6. Response time for operator services</b> (in seconds)	17.8 sec. aver.	90% within 20 sec.	6.1 sec. aver. <sup>26</sup> (Aug. 99)	19.11 sec. aver.	95% within 15 sec.	99.8% within 20 sec.	20 sec. aver.
<b>7. Response time for directory enquiry services</b> (in seconds)	N/A	90% within 15 sec.	5.5 sec. aver.	14 sec. aver.	85% within 15 sec.	69.7% / 76.6 % within 15 sec.	17 sec. aver.
<b>8. Proportion of public pay-telephones in working order</b>	84.5%	96%	98.49%	90.92%	95%	Hours of non-availability of service as a % of hours of availability: 0.9% / 1.1%	99.99%
<b>9. Billing accuracy</b> (no. complaints per 1000 bills)	0.074 (1998)	N/A	1.3	9.2	5	Number of bills modified per 1,000 bills: 0.053 / 0.045	0.5

<sup>25</sup> Local/Provincial.

<sup>26</sup> The indicator refers to international services through the operator (1005 and 1008 services).

**Table 12. INCUMBENTS' VOICE TELEPHONY QUALITY INDICATORS (cont'd)**

INDICATORS	NL	A	P	FIN	UK:	BT	Kingston
<b>Reporting period</b>	1998		Jan – Jun 1999	1998		Quarters 1-4, 1998	Quarters 1-4, 1998
<b>1. Supply time for initial connection</b> (in c. days/w. days/hours)	10-15 w. days aver. 80% within 21 days	5.81 w. days aver. <sup>27</sup> (June 1999)	5 w. days aver.	4.7 w. days aver.	% of orders completed on or before date confirmed or contracted with the customer	Q1 97.8% Q2 97.4% Q3 97.2% Q4 97.3%	Q1 99.8% Q2 100% Q3 99.9% Q4 99.8%
<b>2. Fault rate per access line</b> (no. valid faults reported)	0.027	0.062 (1998)	0.052	0.084	Customer reported faults (residential)	Q1. 0.04 Q2. 0.037 Q3. 0.036 Q4. 0.041	Q1. 0.034 Q2. 0.033 Q3. 0.027 Q4. 0.034
<b>3. Fault repair time</b> (in hours/ w. hours/ w. days)	5 w. hours aver.	5.91 w. hours aver. (Dec. 1998)	90.2% within 12 w. hours	71,4% within one w. day	Service restoration Percentage of fault reports cleared in target time	Q1. 78.3% Q2. 85.3% Q3. 82.4% Q4. 79.9% target: 9 w. hours	Q1. 99.2% Q2. 98.3% Q3. 99.0% Q4. 98.3% target: end of next w. day.
<b>4. Unsuccessful call ratio</b> (% of unsuccessful call attempts)					No equivalent CPI measure	0.5%	Not publicly available
- Local calls							
- National calls	< 1%		0.8%	0.6%			
- Intra-EU		0.5% <sup>28</sup> (May 1999)					
- Extra-EU							
<b>5. Call set up time</b> (in seconds; average values unless specified)	N/A	Intra-EU calls: 0.361 sec. aver. (May 1999)	91.4 % < 4 sec.	N/A	No equivalent CPI measure	Not publicly available	Not publicly available
<b>6. Response time for operator services</b> (in seconds)	N/A	26.4 sec. aver. (26 July-1 Aug. 1999)	11.14 sec. aver.	N/A	No equivalent CPI measure	89.9 - 1.8% answered in 15 sec.	Not publicly available
<b>7. Response time for directory enquiry services</b> (in seconds)	N/A	37.6 sec. aver. (May 1999)	16.9 sec. aver.	12 sec. aver.	No equivalent CPI measure	91.0 – 91.4%, answered in 15 sec.	Not publicly available
<b>8. Proportion of public pay-telephones in working order</b>	N/A	N/A	99%	109.7 faults reported per 100 public phones	No equivalent CPI measure	95.3-96.6%	Not publicly available
<b>9. Billing accuracy</b> (no. complaints per 1000 bills)	N/A	0.6 <sup>29</sup> (1998)	0.4	3.9	Residential and business	Q1&2. 2.0 Q3&4. 2.4	Q1. 1.1 Q2. 2.2 Q3. 0.7 Q4. 0.6

<sup>27</sup> Take-over of connection not included. No separation between “as soon as possible” and “agreed date”.

<sup>28</sup> 30 seconds according to ETSI cannot be guaranteed.

<sup>29</sup> Including ISDN services.



## 4.5.2 – CARRIER SELECTION AND NUMBER PORTABILITY

The tables below show the availability (for users) of key facilities for choosing between operators.

Carrier selection allows a choice of operator on a call-by-call basis (by use of a special access code), whereas carrier pre-selection allows selection of an alternative operator as the default operator.

**Table 13. Number portability and carrier (pre)selection in place**

	Carrier (pre)selection in place					
	local		Long-distance		international	
	selection	pre-select.	selection	pre-select.	selection	pre-select.
<b>B</b>	no	no	yes	no	yes	no
<b>DK</b>	yes	yes	yes	yes	yes	yes
<b>D</b>	no	no	yes	yes	yes	yes
<b>EL</b>	no	no	no	no	no	no
<b>E</b>	no	no	yes	no	yes	no
<b>F</b>	no	no	yes	no	yes	no
<b>IRL</b>	yes	no	yes	no	yes	no
<b>I</b>	no	no	yes	no	yes	no
<b>L</b>	yes	no	yes	no	yes	no
<b>NL</b>	yes	no	yes	no	yes	no
<b>A</b>	yes	no	yes	no	yes	no
<b>P</b>	no	no	no	no	no	no
<b>FIN</b>	no	no	yes	yes	yes	yes
<b>S</b>	yes	yes	yes	yes	yes	yes
<b>UK</b>	yes	no	yes	no	yes	no

Apart from Sweden table 13 reports the situation at 1 August 1999. Source: National Regulatory Authorities.

**Table 14. Number portability in place**

	<b>B</b>	<b>DK</b>	<b>D</b>	<b>EL</b>	<b>E</b>	<b>F</b>	<b>IRL</b>	<b>I</b>	<b>L</b>	<b>NL</b>	<b>A</b>	<b>P</b>	<b>FIN</b>	<b>S</b>	<b>UK</b>
Geographic	no	no	yes	no	no	yes	no	no	no	yes	yes	no	yes	yes	yes
Non-geographical.	no	no	yes	no	no	no	no	no	no	yes	yes	no	yes	no	yes
Mobile	no	no	no	no	no	no	no	no	no	yes	no	no	no	no	yes

Source: National Regulatory Authorities (August 1999)

### 4.5.3 – INCUMBENTS’ RETAIL TARIFFS

This section examines the tariffs for public fixed voice telephony and mobile services charged by the incumbent operators in each Member State. An analysis of the price trend over the past two years is also included.

The figures and information are taken from a study carried out by Eurodata Foundation for the Commission. The data, collected from primary sources (i.e. directly from telecommunications operators), are presented for the incumbent operators in each country and give the position as of 1 August 1999.

The following table shows the charging regime in each Member State for public fixed voice telephony.

**Table 14. Charging system for public fixed telephony (August 1999)**

	1997	1998	1999
<b>B</b>	Units	Per second	Per second
<b>DK</b>	Units	Units	Per second
<b>D</b>	Units	Units	Units
<b>EL</b>	Units	Units	Units
<b>E</b>	Units	Units	Per second
<b>F</b>	Units	Per second	Per second
<b>IRL</b>	Units	Units	Per second
<b>I</b>	Units	Units	Units
<b>L</b>	Units	Units	Units
<b>NL</b>	Per second	Per second	Per second
<b>A</b>	Per second	Per second	Per second
<b>P</b>	Units	Units	Units
<b>FIN</b>	Per second	Per second	Per second
<b>S</b>	Per second	Per second	Per second
<b>UK</b>	Per second	Per second	Per second

Two different sets of tariffs for fixed national voice telephony services are shown in the following sections: the tariff related to a basket of calls and the actual price of some individual calls (3 and 10 minute local, regional, long-distance and international calls).

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<sup>30</sup>. The total charge for a basket of national calls gives an estimate of the average annual spending by a typical “European business/residential user”. In the case of international tariffs, the basket of international calls for each country indicates the average price of a single call from the originating country to all other OECD destinations.

The tariffs for a 3 and 10 minute call at peak time aim to show the call charges actually paid by the consumer for individual calls. Thus for countries which apply unit-based charging (see table 1), the price of a whole unit is calculated (including VAT).

<sup>30</sup>A full description of the methodology can be found in “Performance indicators for public telecommunications operators”, ICCP Series No.2.2, OECD 1990.

The euro exchange rate expressed in terms of Purchasing Power Parities (euro/PPP) has been applied, in order to show the comparisons of retail price level between Member States in real terms, instead of nominal terms (see section 4.8 for more details on euro and euro/PPP exchange rates)

The “average charges/tariffs” shown in the charts are a simple rather than a weighted average.

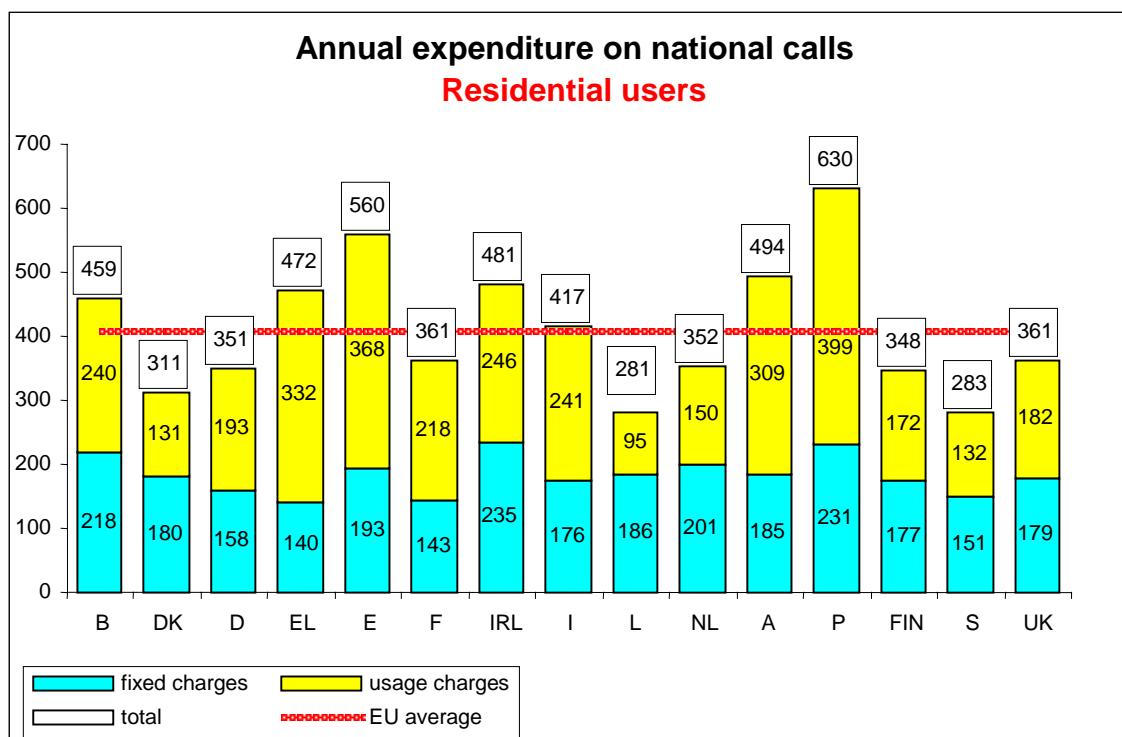
**4.5.3.1 – PUBLIC FIXED VOICE TELEPHONY TARIFFS:  
NATIONAL CALLS**

**ANNUAL EXPENDITURE ON NATIONAL CALLS  
(National call basket)**

The basket of national calls covers 14 distances, ranging from 3 km to 490 km, and 6 days and times (4 during weekdays and 2 at weekends) for both residential and business users. Each distance and time is assigned a portion of the traffic.

Standard tariff packages are taken into account, but cheaper tariffs can be charged under specific discounted packages.

**Chart 58**



Average annual spending by a residential user on national calls (local, regional and long-distance) at August 1999. Values are expressed in euro/PPP and include VAT.

The fixed charges are calculated from the annual rental charge plus 1/5 of the installation charge.

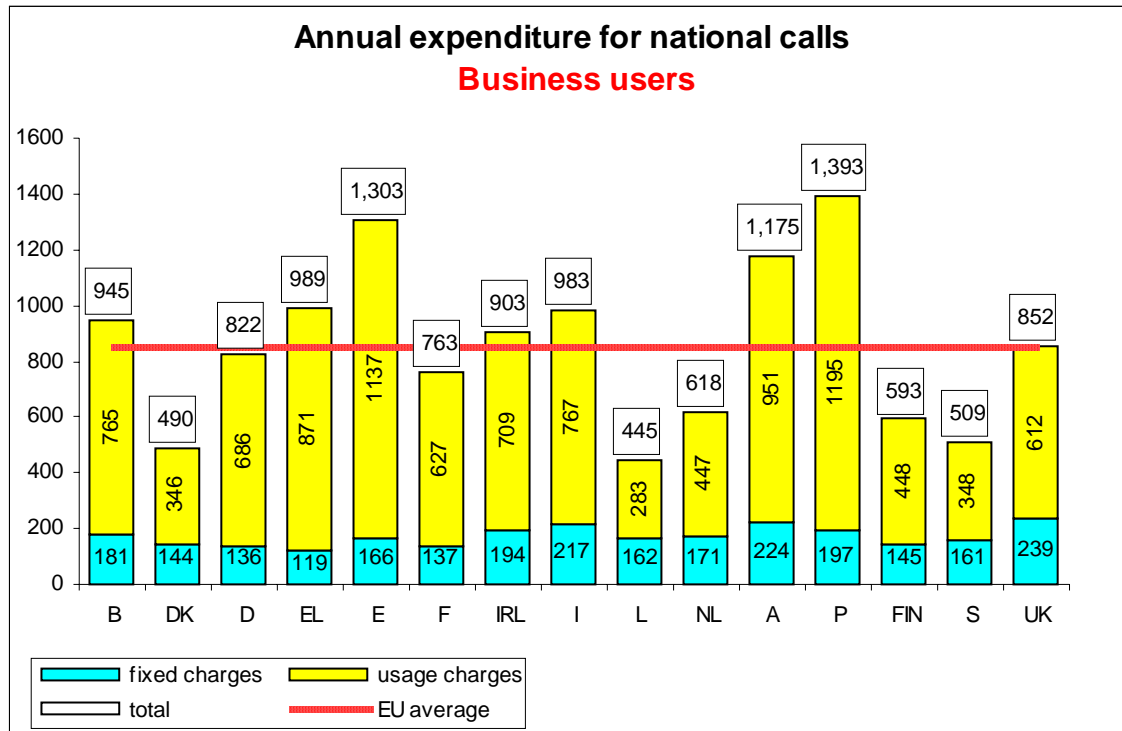
The usage charges refer to a basket of 1,215 calls, distributed over 14 different distances from 3 km to 490 km (local, regional and long-distance), at representative times of day (4 during the week and 2 at weekends), and with 4 different call durations depending on the time of day and distance. The



usage for residential users is weighted towards off-peak hours, and with typically long calls. Only 48% of the calls are within normal business hours, and 74% of the calls are for distances below 10 km.; 9% of the calls are for distances above 100 km. Calls to mobile are excluded.

In the case of Luxembourg, local calls cover the entire country.

**Chart 59**

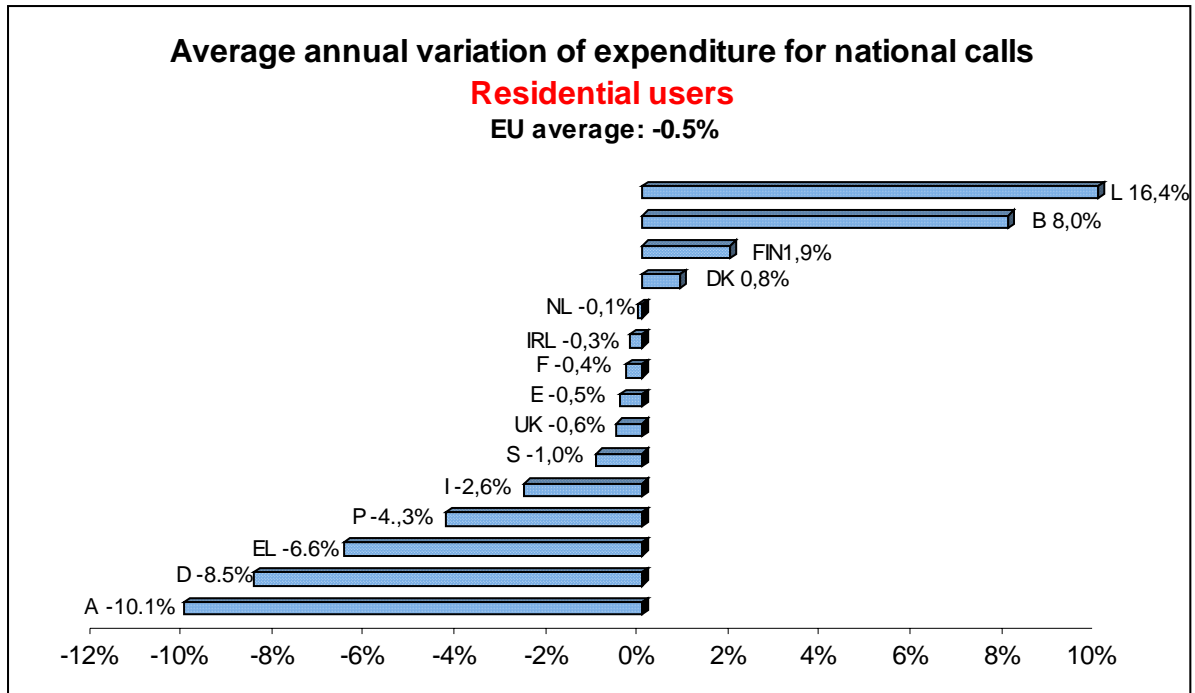


Average annual spending by a business user on national calls (local, regional and long-distance), as of August 1999. Values are expressed in euro/PPP and exclude VAT. The fixed charges are calculated from the annual rental charge plus 1/5 of the installation charge.

The usage charges refer to a basket of 3,567 calls, distributed over 14 different distances from 3 km to 490 km (local, regional and long-distance), at representative times of day (4 during the week and 2 at weekends), and with 4 different call durations depending on the time of day and distance. The usage for business users is weighted towards business hours, and with typically short calls. Over 85% of the calls are within normal business hours, and 64% of the calls are for distances below 10km; 12.5% of the calls are for distances above 100 km. Calls to mobile are excluded.

In the case of Luxembourg, local calls cover the entire country.

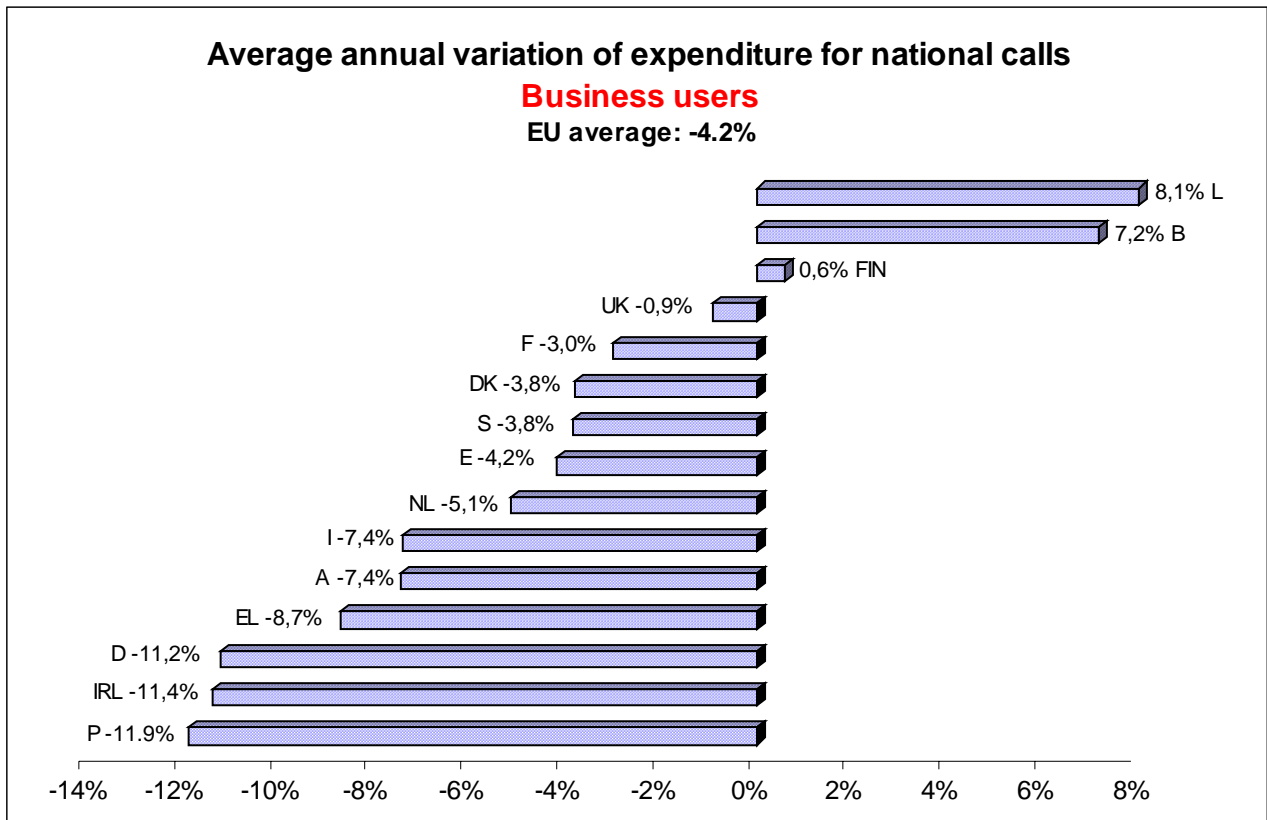
**Chart 60**



Average annual variation in nominal terms based on the differences between the 1997 and 1999 tariffs.

Value for Luxembourg is not to scale.

**Chart 61**



Average annual variation in nominal terms based on the differences between the 1997 and 1999 tariffs.

## ACTUAL RETAIL PRICE OF A 3 AND 10 MINUTE NATIONAL CALL (3-50-200 km)

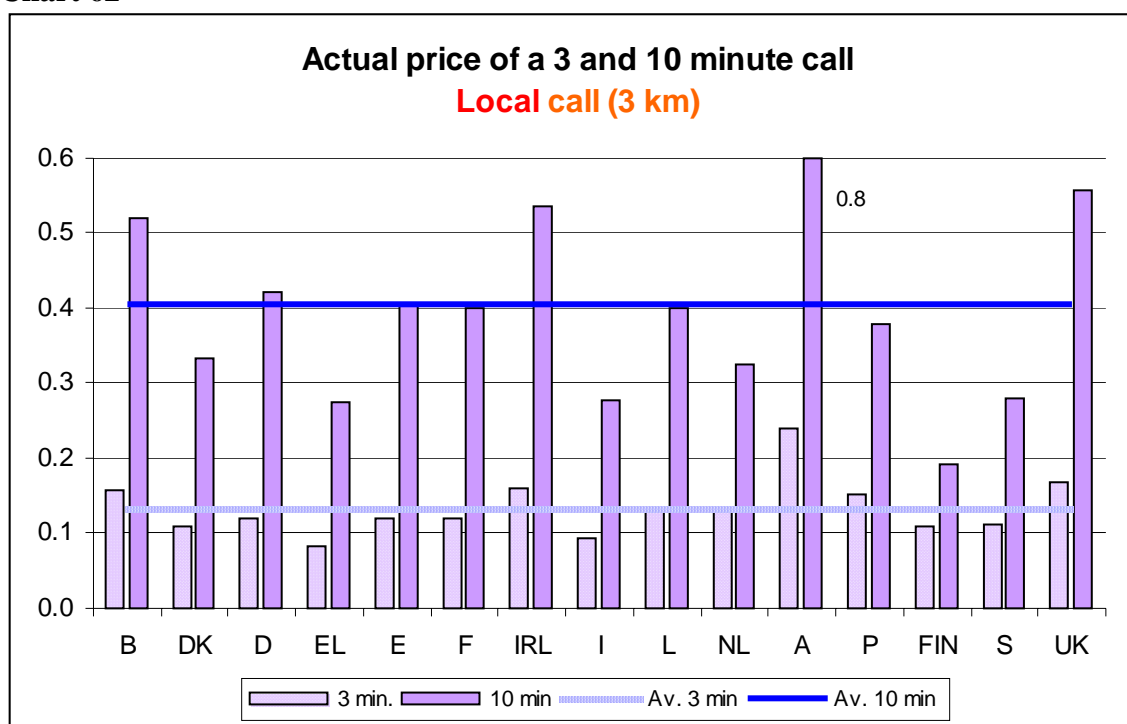
The following charts show the actual retail price of a 3 and 10 minute national call respectively at peak hours (weekdays 11.00). The actual retail price indicates the call charges actually paid by the consumer for an individual call. This means that for those countries where a unit based charging system is used, the price for the amount of full units is calculated.

Three call distances are selected for the national call: 3 km (equivalent to a local call), 50 km (equivalent to a regional call) and 200 km (equivalent to a long-distance call). In several countries, these distances are the threshold to a different tariff category. In such cases, the rates from the lower distance band are used.

Where different tariff packages exist (i.e. Austria and The Netherlands), the basic residential package is selected. The standard tariff is taken into account in all other cases (cheaper tariffs can be charged under specific discounted packages).

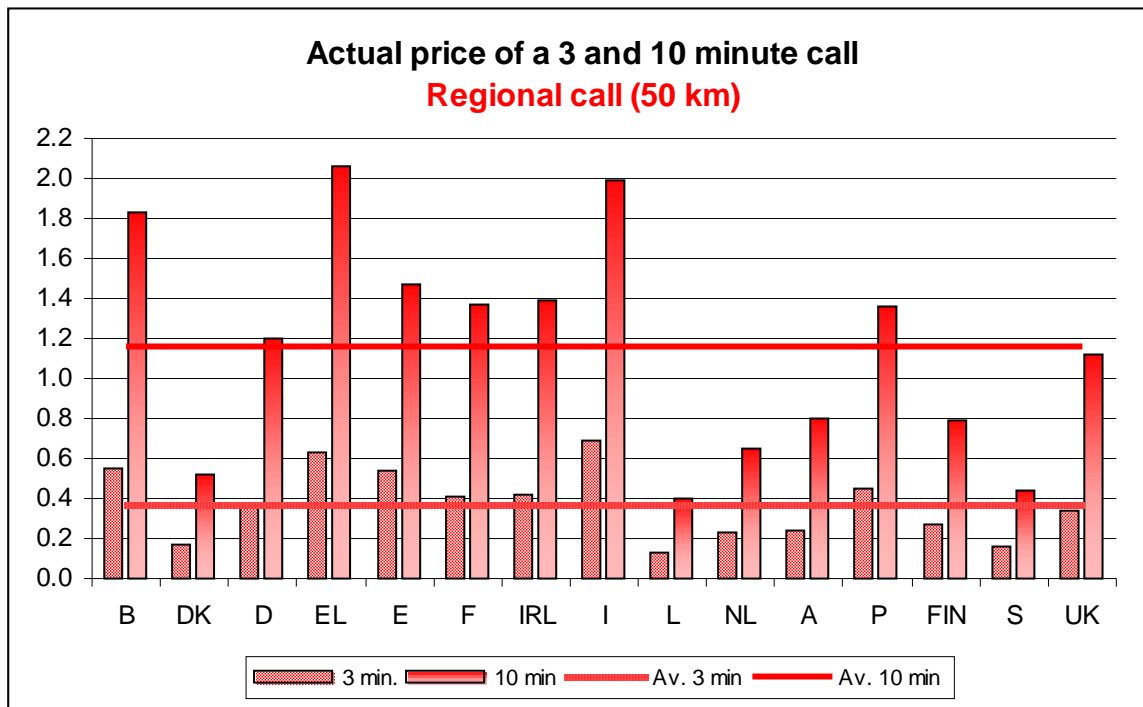
Values are expressed in euro/PPP (including VAT) and refer to August 1999.

**Chart 62**



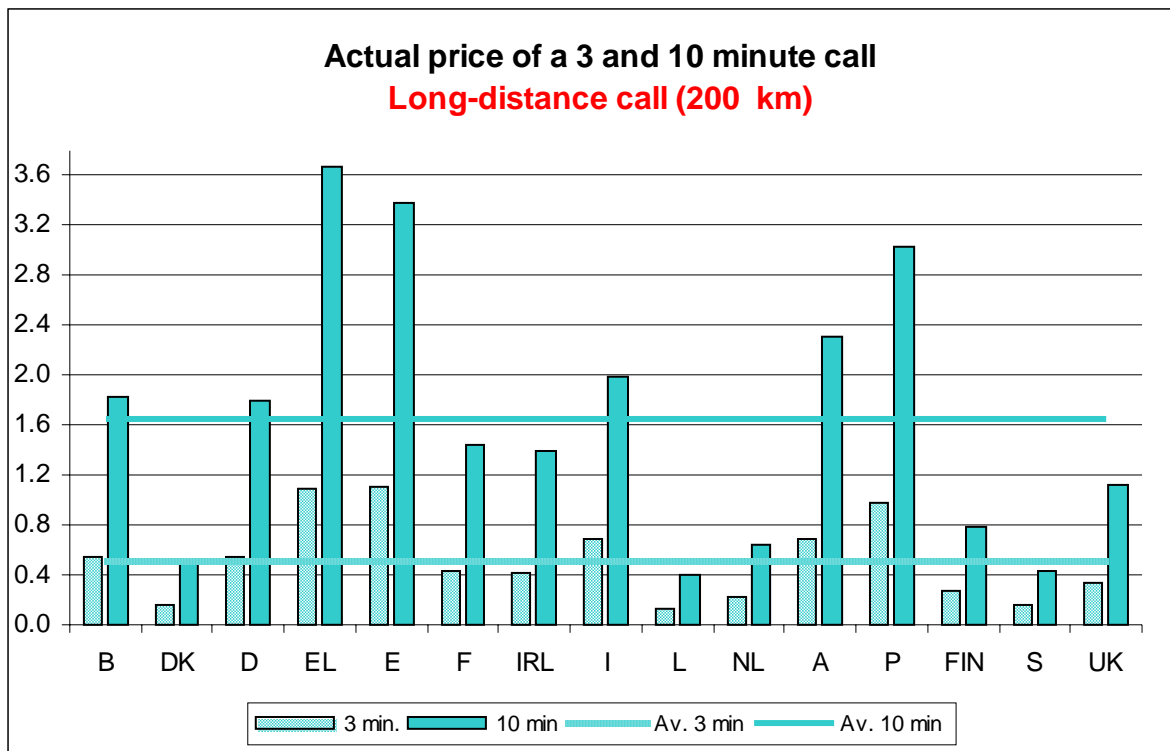
Values for Austria are not to scale.

**Chart 63**



In Luxembourg there is no distinction between local and regional calls.

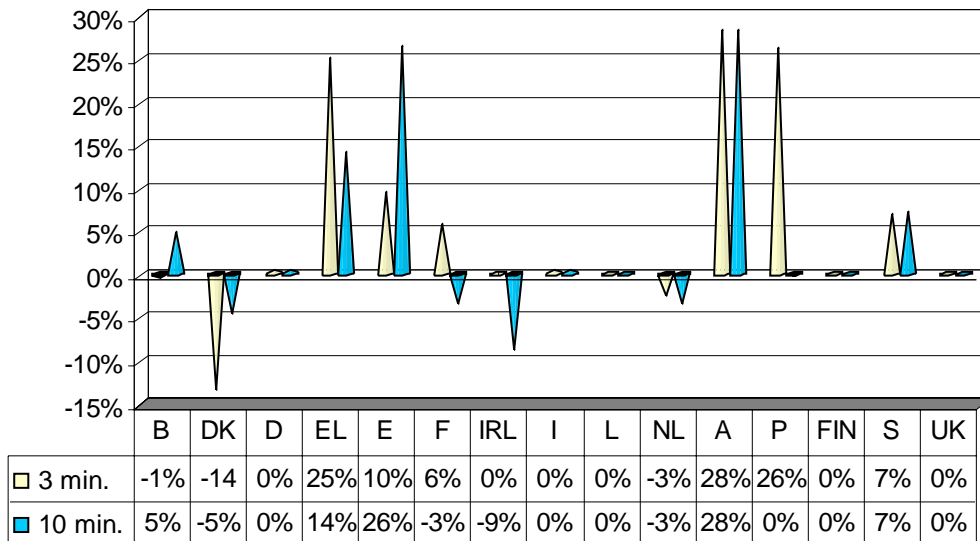
**Chart 64**



In Luxembourg there is no distinction between local and national long-distance calls.

Chart 65

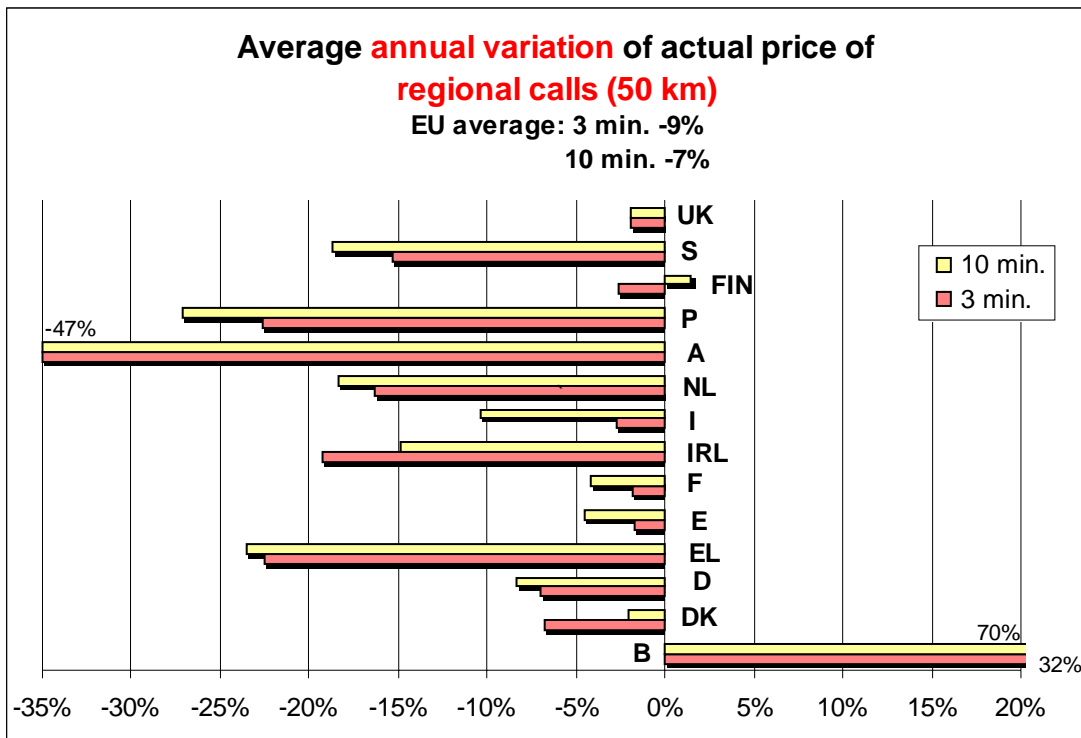
Average **annual variation** of actual price of  
**local calls (3 km)**  
 EU average: 3 min. +6%  
 10 min. +4%



Average annual variation in nominal terms based on the differences between the 1997 and 1999 tariffs.

No change in the case of Germany, Italy, Luxembourg, Finland and the United Kingdom.

Chart 66

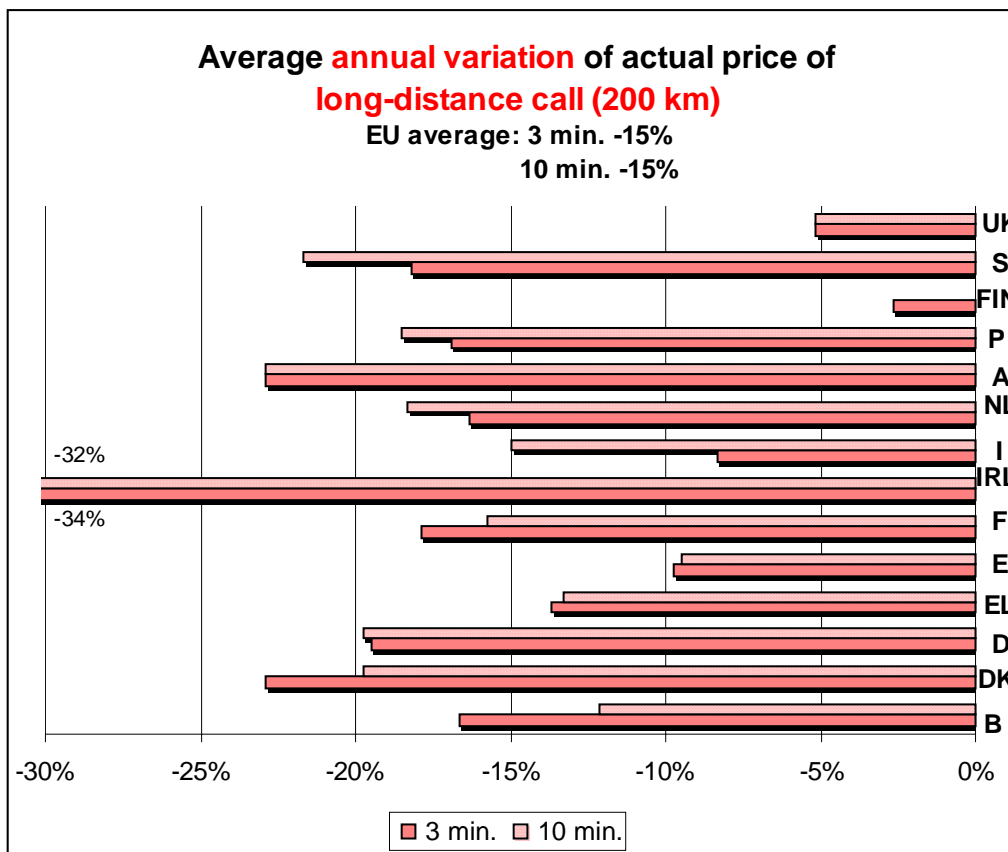


Average annual variation in nominal terms based on the differences between the 1997 and 1999 tariffs.

Data for Belgium and Austria are not to scale. No change for Luxembourg.

Values for Belgium reflect the changes on the definition of local/regional/long distance calls; the regional areas were abolished due to the enlargement of local and long distance areas.

**Chart 67**



Average annual variation in nominal terms based on the differences between the 1997 and 1999 tariffs.

Data for Ireland is not to scale.

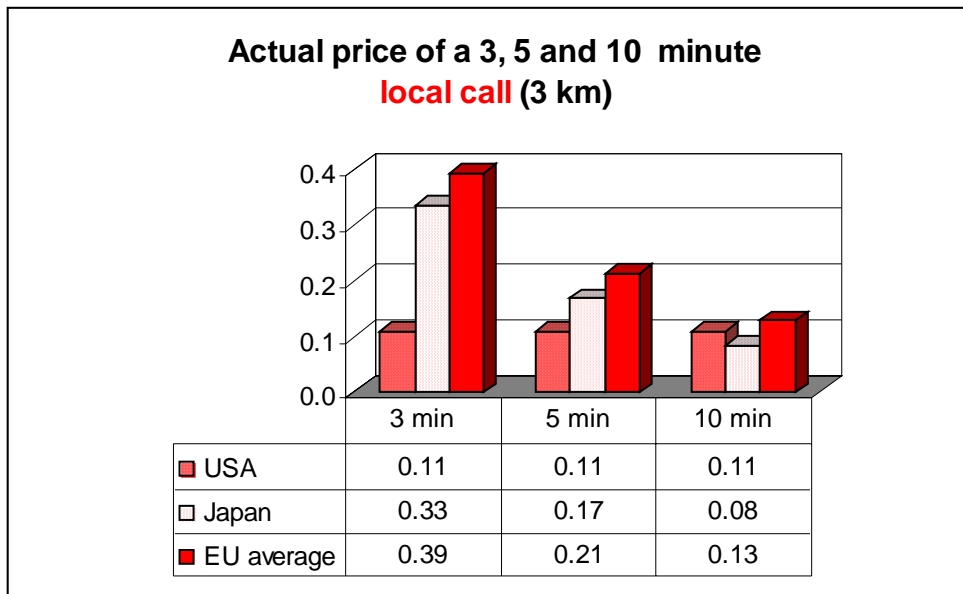
No change for Luxembourg.

## COMPARISON BETWEEN EU, JAPAN AND USA

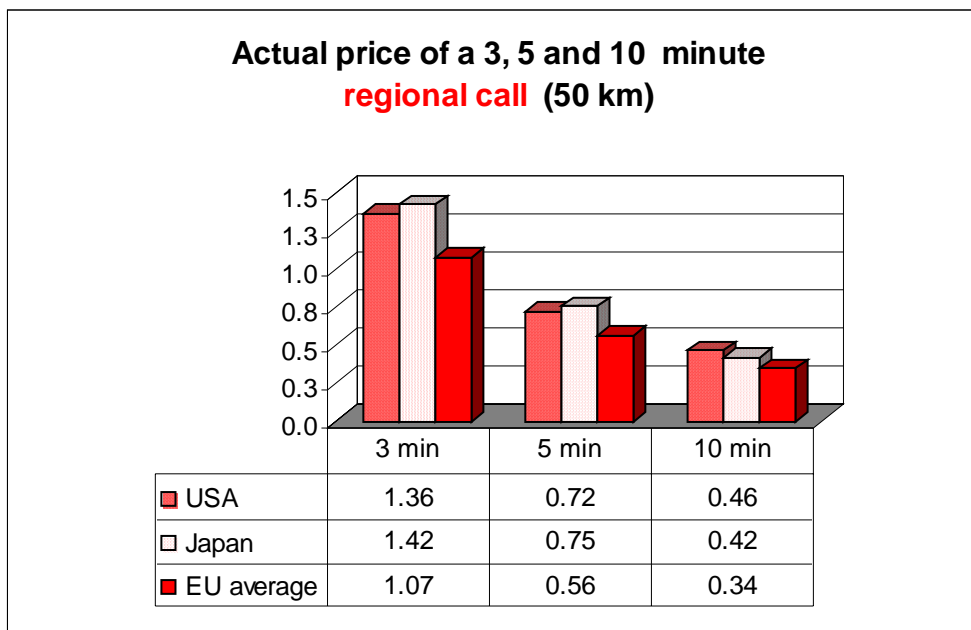
This section compares the actual price of a 3, 5 and 10 minute national call respectively in the EU (average for the 15 countries), one leading US operator (Ninex/Bell Atlantic)<sup>31</sup> and the incumbent Japanese operator (NTT).

Values are expressed in euro (including VAT) and refer to August 1999.

**Chart 68**

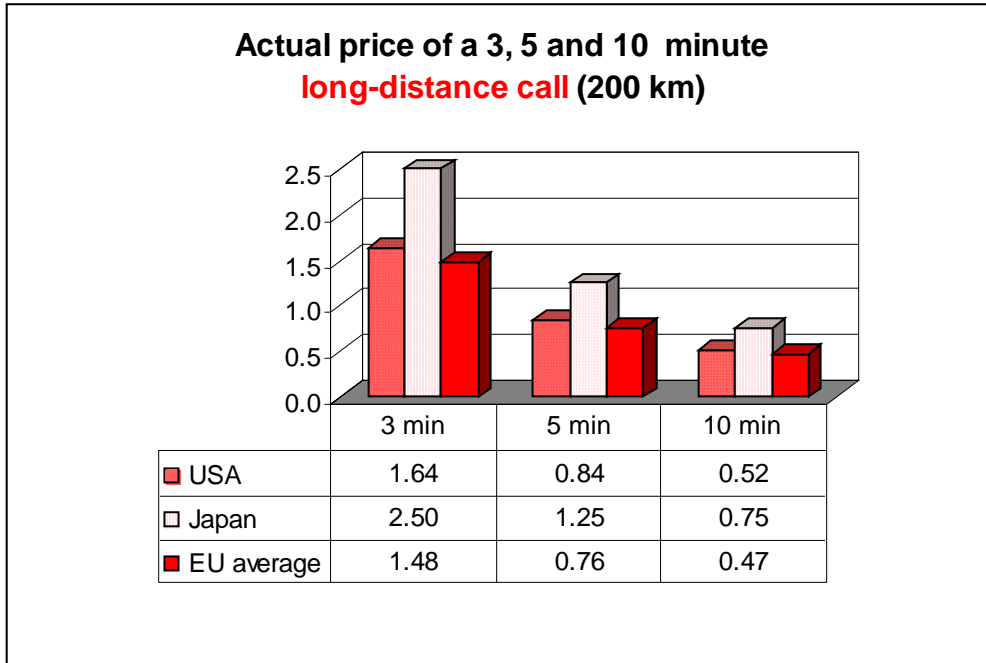


**Chart 69**



<sup>31</sup> Tariffs may vary with other operators, and should be regarded as purely indicative

Chart 70





#### 4.5.4 – PUBLIC FIXED VOICE TELEPHONY TARIFFS: INTERNATIONAL CALLS

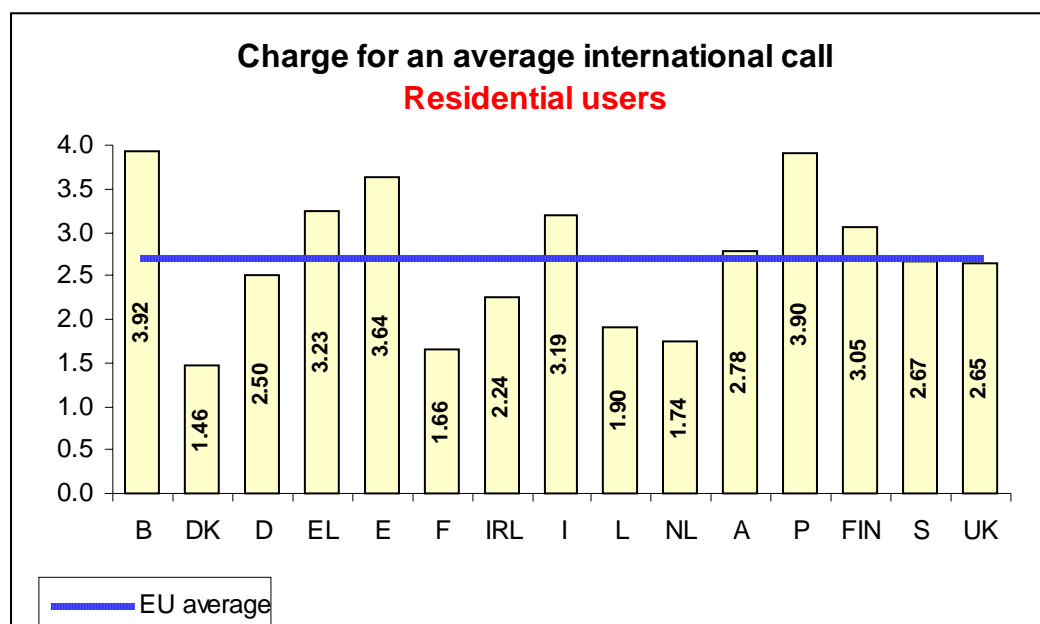
##### CHARGE FOR AN AVERAGE INTERNATIONAL CALL (INTERNATIONAL CALL BASKET)

The basket of international calls for each country indicates the average price of a single call from the originating country to all other OECD destinations. It is based on 3 minute peak and 5 minute off-peak calls from one country to all other OECD countries. The basket uses the zoned weighted method, which divides the world into three zones: Europe, North America and Asia/Pacific. Each destination is weighted according to its position relative to the country of origin: calls to a country in the same zone have a 50% weighting, the adjacent zone has a 30% weighting and the distant zone a 20% weighting. Volume discounts are not taken into account.

Standard tariff packages are taken into account, but cheaper tariffs can be charged under specific discounted packages.

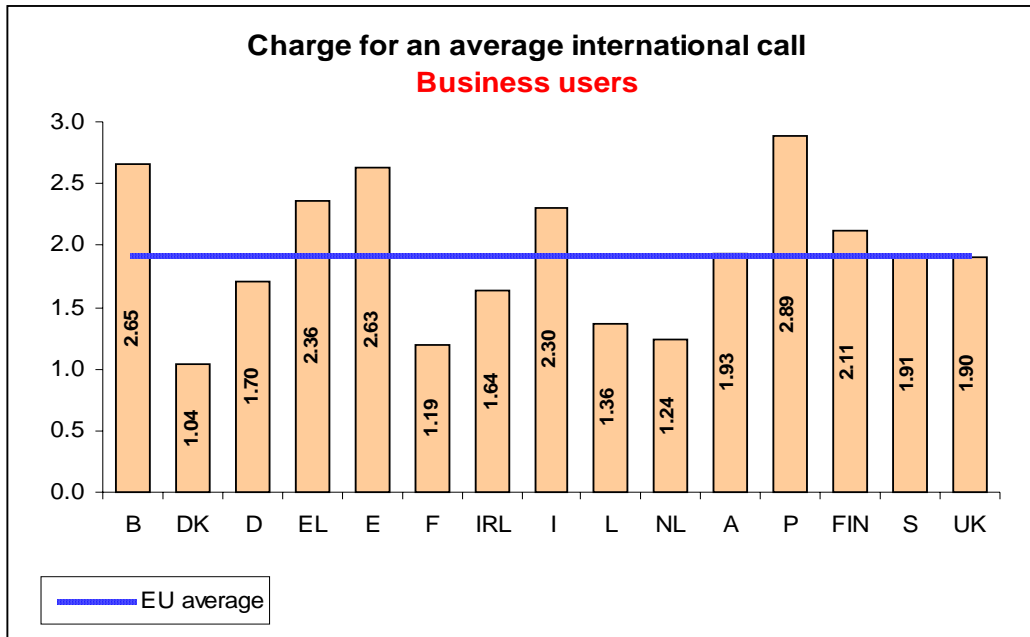
Value are expressed in euro/PPP and give the position at 1 August 1999.

**Chart 71**



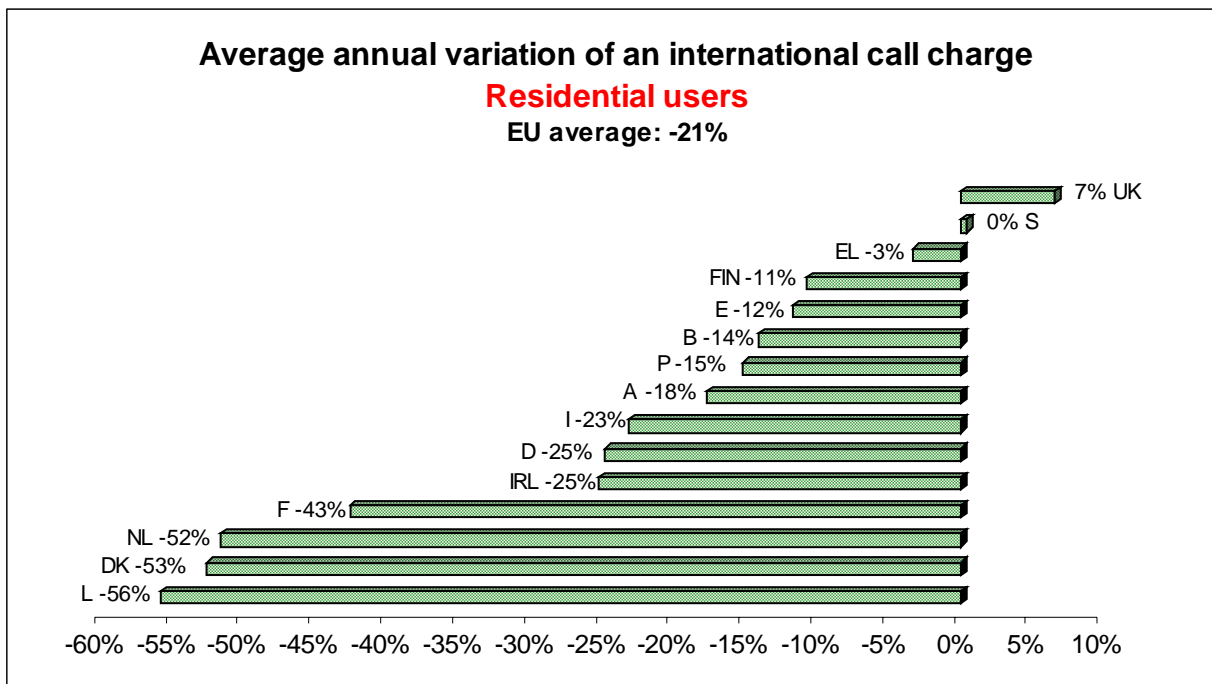
The residential basket includes VAT, and derives 25% of the call cost from peak charges and 75% from off-peak charges.

**Chart 72**



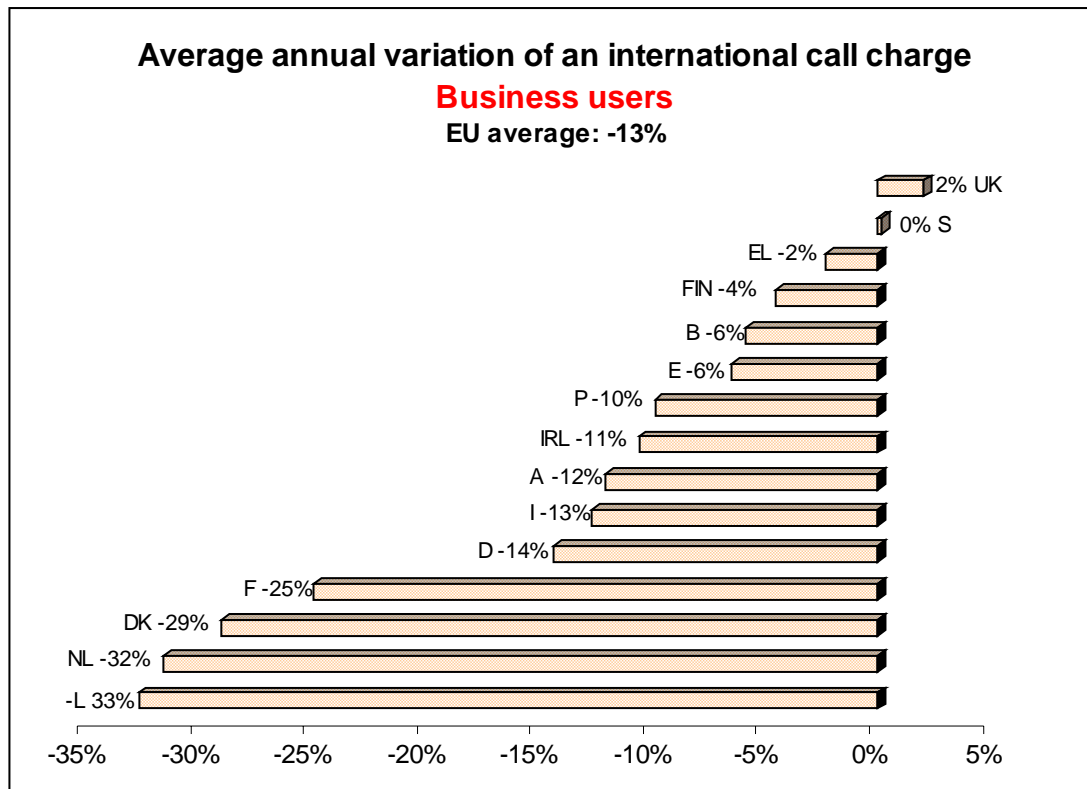
The business basket excludes VAT, and derives 75% of the call cost from peak charges and 25% from off-peak charges.

**Chart 73**



Average annual variation in nominal terms based on the differences between the 1997 and 1999 tariffs.

Chart 74



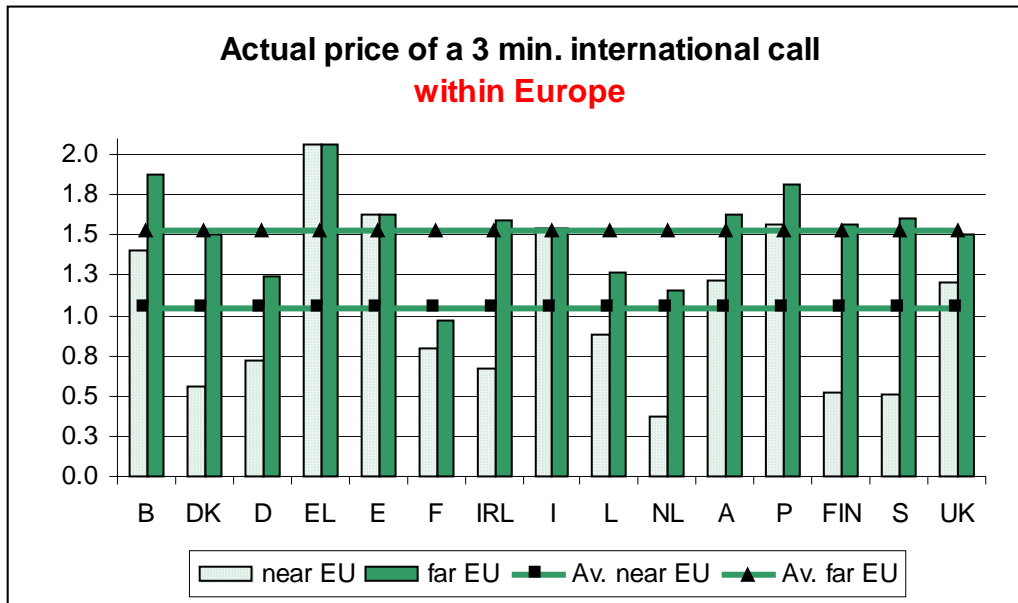
Average annual variation in nominal terms based on the differences between the 1997 and 1999 tariffs.

## ACTUAL COST OF A 3 AND 10 MINUTE INTERNATIONAL CALL TO EUROPE, USA AND JAPAN

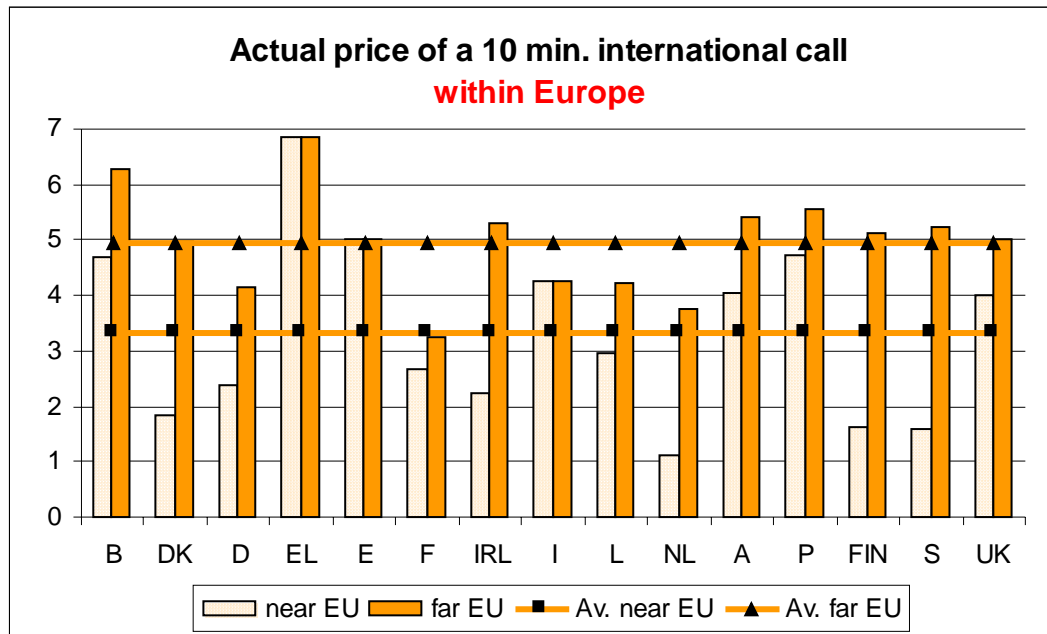
The following charts show the actual cost of a 3 and 10 minute international call respectively at peak hours (weekday 11.00), to 4 different destinations: neighbouring country<sup>32</sup> (near EU), more distant country<sup>33</sup> (far EU), USA and Japan.

Values are expressed in euro/PPP and include VAT.

**Chart 75**



**Chart 76**



<sup>32</sup> The neighbouring countries are defined as: France for Belgium, Germany and the United Kingdom; Sweden for Denmark and Finland; Italy for Greece; Portugal for Spain; the United Kingdom for Ireland; Greece for Italy; Germany for Luxembourg, The Netherlands and Austria; Spain for Portugal; Denmark for Sweden.

<sup>33</sup> The more distant countries are defined as: Greece for Belgium, Denmark, Germany, France, Ireland, Luxembourg, The Netherlands, Austria, Finland, Sweden and the United Kingdom; Denmark for Greece, Spain, Italy and Portugal.

Chart 77

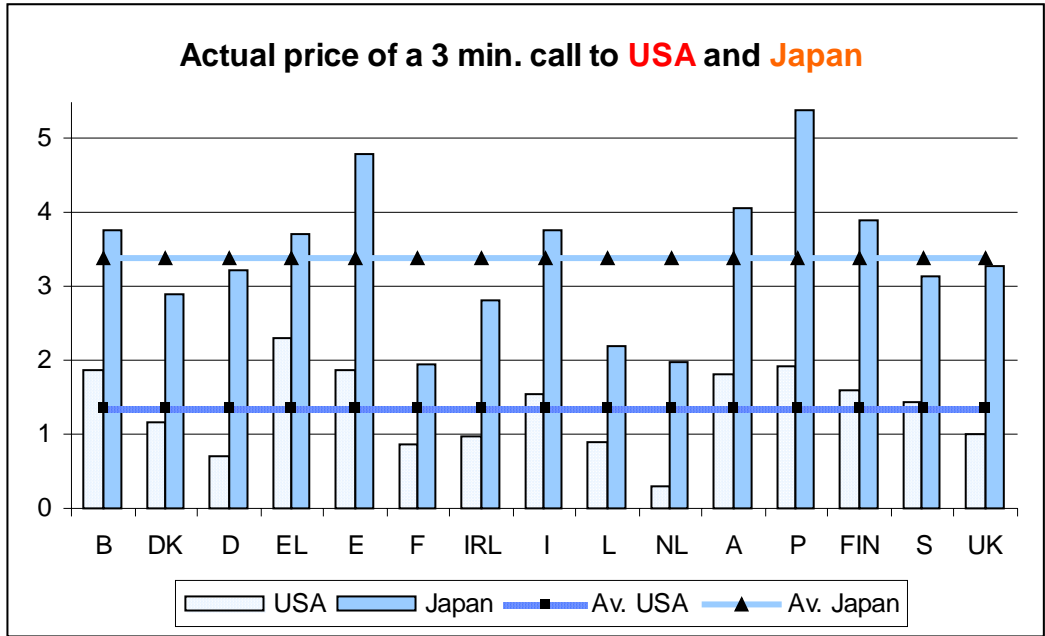


Chart 78

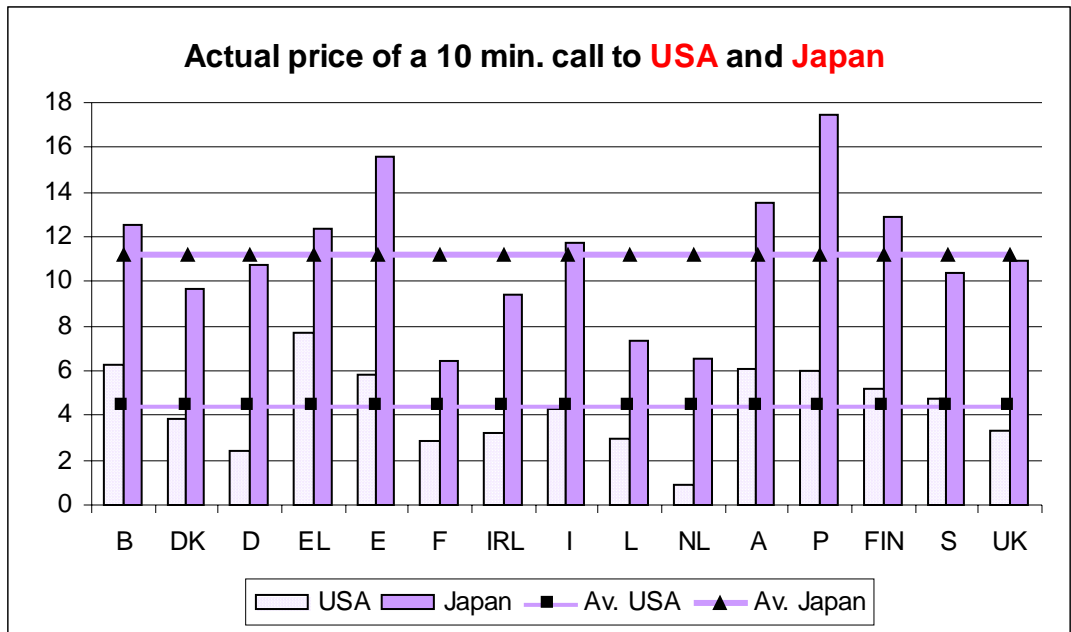
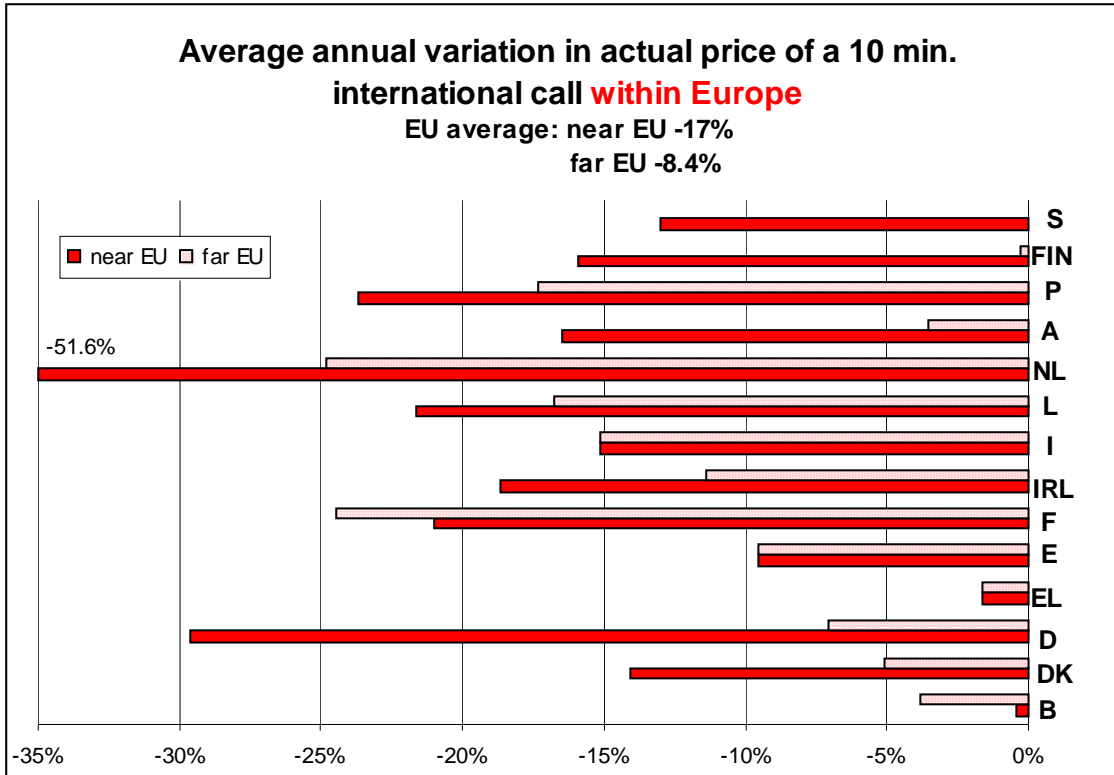
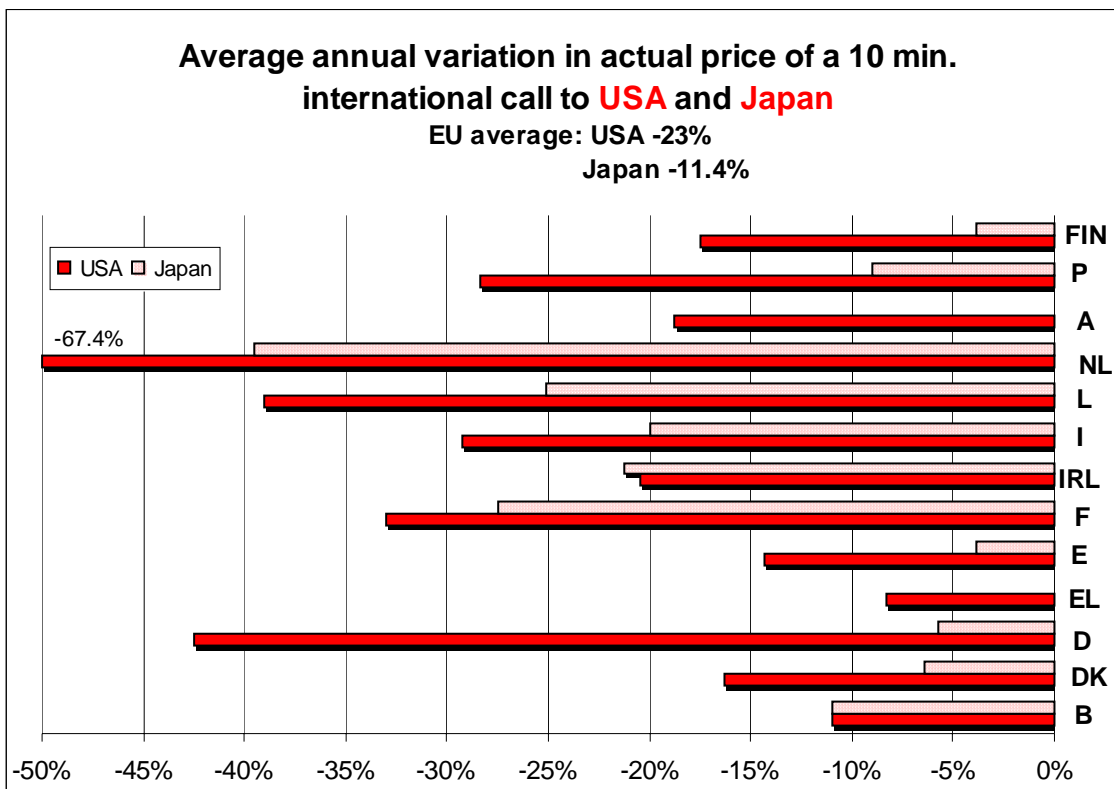


Chart 79



Value for The Netherlands is not to scale. No changes for the United Kingdom. Average annual variation in nominal terms based on the differences between the 1997 and 1999 tariffs.

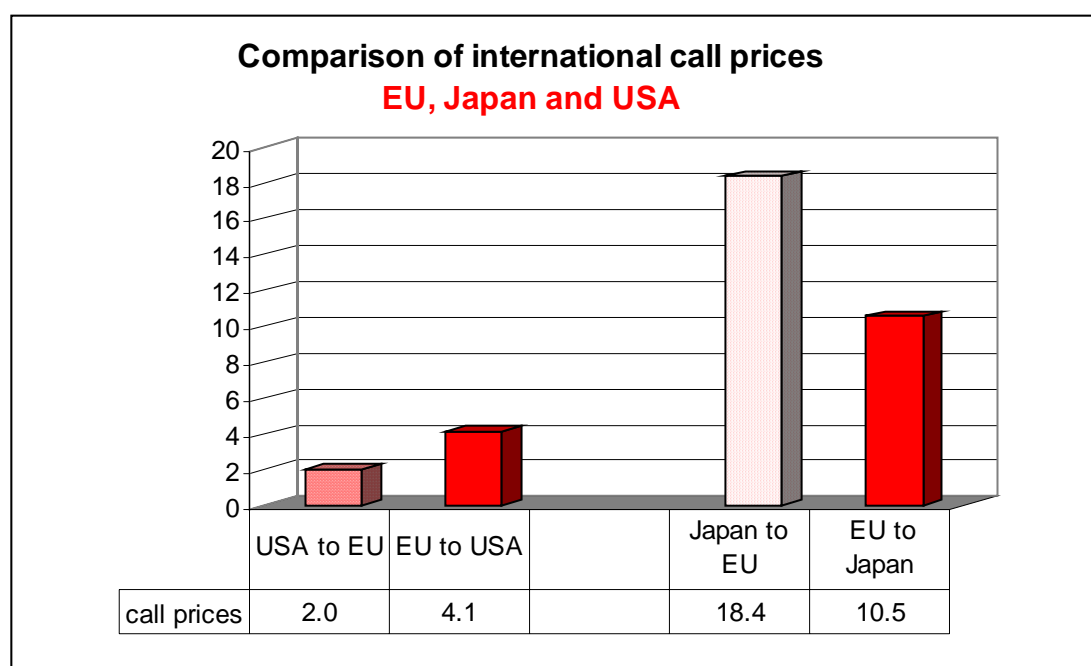
Chart 80



Value for The Netherlands is not to scale. No changes for Sweden and the United Kingdom. Average annual variation in nominal terms based on the differences between the 1997 and 1999 tariffs.

## COMPARISON BETWEEN EU, JAPAN AND USA

**Chart 81**



Actual cost of a 10 minute international call at peak hours (weekdays 11.00) from EU<sup>34</sup> to USA and Japan and from USA and Japan to EU<sup>35</sup>.

Figure for USA refers to Ninex/Bell Atlantic, and should be regarded as purely indicative. Figure for Japan refer to NTT.

Values are expressed in euro (including VAT ) and give the position as at 1 August 1999.

<sup>34</sup> Average charge for call to USA from the 15 Member States

<sup>35</sup> Average call charge to the United Kingdom and Greece.

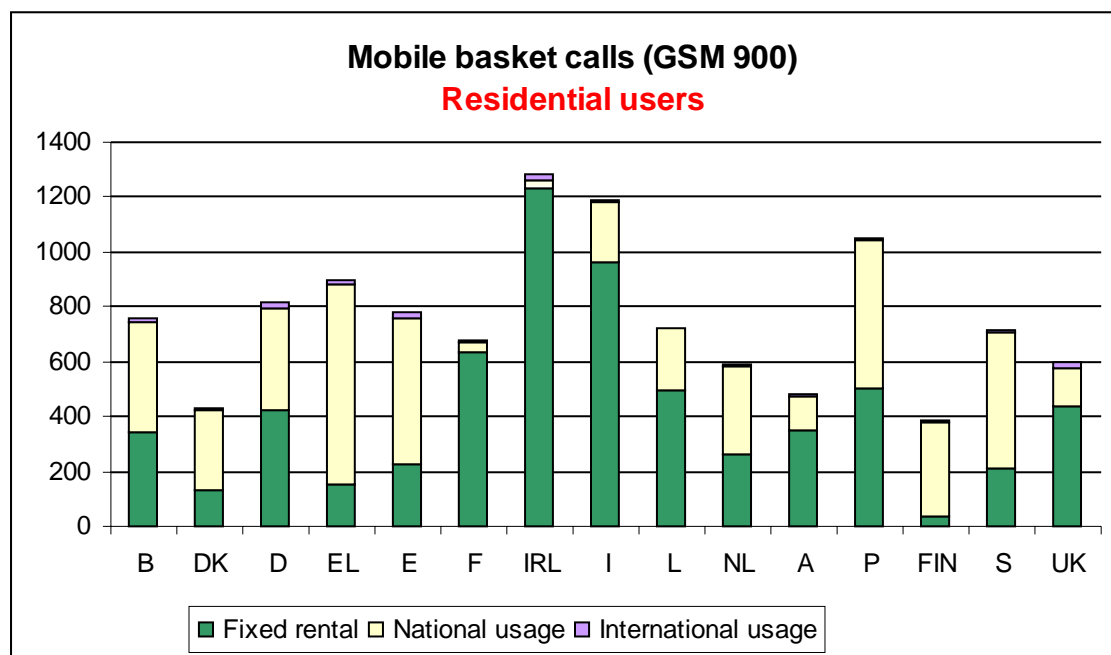
#### 4.5.4 – PUBLIC MOBILE VOICE TELEPHONY TARIFFS

The total charge for the basket of GSM 900 mobile calls<sup>36</sup> gives an estimate of the average annual spending for mobile services by a typical European residential/business user. The basket of mobile calls covers 14 distances, ranging from 3 km to 490 km and 6 days and times (4 during weekdays and 2 at weekends); each distance and time is assigned a portion of the traffic.

The basket of mobile calls includes the yearly fixed rental (plus 1/5 of the installation charge), national calls to fixed networks, national calls to mobile networks and international calls (different percentages for business and residential users). The same standard or mid-range packages have been selected for both residential and business users,<sup>37</sup> and may be used by both (low and high intensity users) within the range suggested by the baskets. The residential (low intensity) users basket is typical of personal usage, with a weighting towards the afternoon and evening and a lower number of calls compared to the high intensity users. The high intensity basket is more typical of professional usage, with a heavy weighting towards business hours and twice as many calls as the low intensity basket.

Free calls included in the package price are subtracted from the usage charges, where relevant.

**Chart 82**



The fixed charges are calculated from the annual rental charge plus 1/5 of the installation charge. The national usage charges refer to a basket of 568 mobile calls; the international usage portion is 1%.

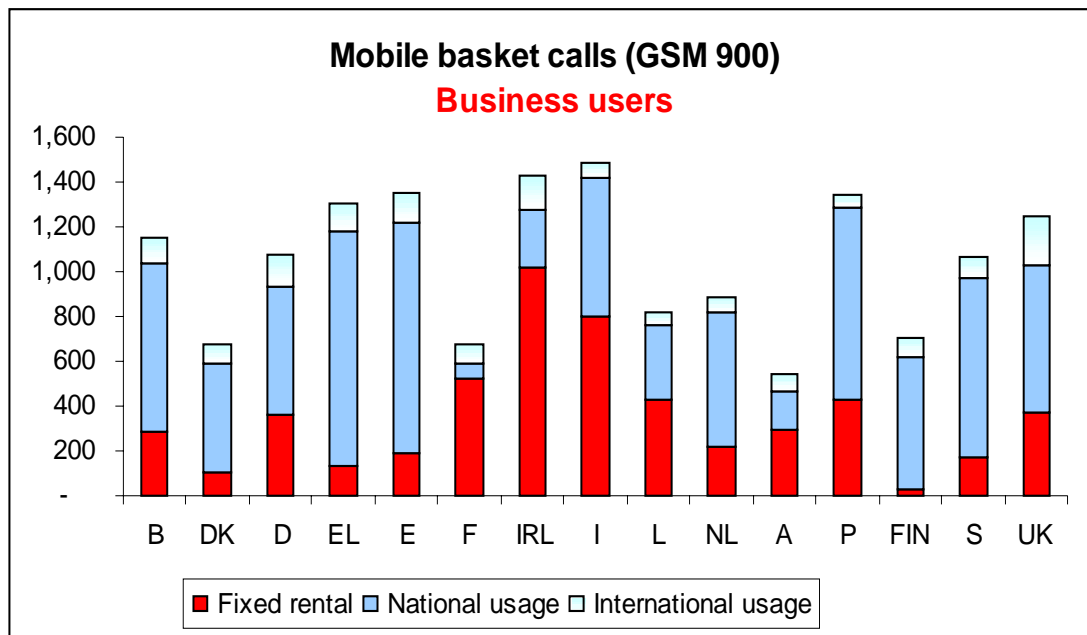
<sup>36</sup> Since the OECD did not devise a methodology for a digital mobile basket, in the following we use the digital mobile basket proposed by Eurodata.

<sup>37</sup> The packages selected are the following: ProxiPro for Begacom Mobile (B); Privat Plus for Tele Denmark Mobil (DK); ProTel-D1 for T-Mobile (D); Basic Program 2 for CosmOTE (EL); Movistar Personal for Telefonica Moviles (E); Loft Forfait 5H for France Telecom Mobil (F); Eirtime 250 for Eircell (IRL); EP120 for TIM (IT); Business for P&T Luxembourg (L); Flexibel Premium for KPN (NL); Geschäft for MobilKom (A); Normal for TNM (P); Classic for Sonera (FIN); Volym for Telia Mobile (S); Regular Caller + for Cellnet (UK).



Values are expressed in euro/PPP (including VAT), and give the position at 1 August 1999.

Chart 83



The fixed charges are calculated from the annual rental charge plus 1/5 of the installation charge. The national usage charges refer to a basket of 1,169 mobile calls; the international usage portion is 5%.

Values are expressed in euro/PPP (excluding VAT), and give the position at 1 August 1999.