ANACOM

ICP - Autoridade Nacional de Comunicações
Av. José Malhoa, nº12 - 1099-017 Lisboa
Portugal

Internet - http://www.anacom.pt
e-mail - info@anacom.pt
Telephone - +351 217211000
Fax - +351 217211001

The information is also available in Anacom's Internet website in:

http://www.anacom.pt/template15.jsp?categoryId=52969

International Comparisons of Leased lines Prices - January 2003

Table of Contents

I. Summary and main results

The present study makes comparisons between the prices for leased lines provided by PT Comunicações S.A. (PTC) arising from the Deliberation by the Board of Directors of ANACOM of 26/12/02, and the most recent prices charged by the incumbent operators in the other countries of the European Union (EU).

The scope of the international price comparison study was extended so that the overall basket includes prices for 34 Mbps digital circuits, and it is envisaged that future studies shall consider a basket that incorporates circuits with a broader bandwidth, although at the present time the evidence available regarding the prices charged in different countries is limited.

The main conclusions are:

- In Portugal, the price of the **overall basket** of national circuits (analogue, 64 Kbps digital, 2 Mbps digital and 34 Mbps digital) is 29% lower than the average of the values charged in the other countries of the EU.

- The price of the **basket of national analogue circuits** is around 8% higher than the average for the baskets offered by the other European incumbent operators. It should, however, be emphasised that these circuits account for a small portion in the overall basket, as a result of the development of electronic communications and of the increased need for bandwidth for business use.

- The price of the **basket of national digital circuits** (64 Kbps, 2Mbps and 34 Mbps) is around 30% below the average value charged by the EU's other incumbent operators.

- The simple average of prices of **international circuits** as charged by PT Comunicações is lower than the equivalent average charged by the other operators for 64 Kbps and 2 Mbps digital circuits, by 48% and 30% respectively, and is higher for analogue circuits (+10%).

- The monthly rental of **64 Kbps national digital circuits** is between 18% and 38% lower than the average charged within the Community, for 400 Km long and 2 Km long circuits respectively.

- The price of a monthly subscription to **2 Mbps national digital circuits** is also lower than the average price charged by the EU's other incumbent operators, and the differences are of between 15% and 38% for renting 400 Km long and 2 Km long circuits, respectively.

- As regards **34 Mbps circuits**, the price charged by PT Comunicações is 18% above the average price charged by the other operators considered for a distance of 2 Km. For distances of 200 km and 400 km, PTC's prices are 6% and 10% lower than the average, respectively, and are close to the average for the other distances considered.

- In Portugal, the prices of **short-distance circuits** (2 Kms) are lower than the average values charged by the EU's incumbent operators, except in the case of 34 Mbps circuits. It should be stated that circuits of a shorter distance account for a greater portion in the basket of national circuits, which is reflected in Portugal's relatively favourable position with regard to the EU average.

- With regard to 400 km circuits, prices in Portugal are also lower than the average for the other countries, except in the case of analogue circuits. It is important to point out that, within a nationwide context, the demand for analogue circuits with 400 Km accounts for a smaller relative portion.

- The following table summarises the main differences in the monthly rental to circuits in Portugal with regard to the European average. The table is set out by distance:

Km	Analogue	64 Kbps	2 Mbps	34 Mbps
2	-15%	-38%	-38%	18%
10	-18%	-33%	-31%	1%
20	43%	-31%	-28%	-1%
80	92%	-28%	-23%	0%
200	102%	-23%	-21%	-6%
400	85%	-18%	-15%	-10%

- The price of **installing** lower capacity national circuits is below the EU average, as can be seen from the table below.

	Analogue	64 Kbps	2 Mbps	34 Mbps
Installation	-77%	-40%	-60%	-84%

II. Introduction

The present study makes comparisons between the prices for renting circuits as provided by PT Comunicações S.A. (PTC) arising from the Deliberation by the Board of Directors of ANACOM of 26/12/02, and the prices charged by the incumbent operators in the other countries of the European Union in December 2002.

The study analysed the various prices for the installation of and monthly rental to the national and international leased lines service.

III. Method and Assumptions

Given the countless possibilities for configuring the leased lines, it is necessary to systemise some options in order to ensure price compatibility between the traditional operators in the countries of the European Union:

i) Given the specific geographical characteristics and the difficulty in comparing the prices charged by Luxembourg's incumbent operator, we opted to exclude this country in the price comparisons for national circuits, as in previous studies performed regarding this subject.

ii) The **price of the complete circuit** was considered, i.e., the price includes two local terminations, in the case of national circuits, and one termination in the case of international circuits.

iii) The values used do not include VAT, and they have been extracted from the publication **Tarifica**[1], of December 2002, from PT Comunicações' price list resulting from the restructuring of the supply of circuits as subject to the ANACOM Deliberation of 26/12/02 (see http://www.anacom.pt/template12.jsp?categoryId=49921) and from the site belonging to the Spanish regulator, which provides more updated information regarding national circuits than the aforementioned publication.

iv) Whenever it was found that prices were reduced according to the duration of the contract periods, the price relating to one-year contracts was taken.

[1] Tarifica - Worldwide Telecommunications Tariffs

v) A basket was created, comprising the range of circuits in place in Portugal in June 2001 (including 64 Kbps, 2Mbps, 34 Mbps capacities, and analogue circuits), to which was applied the price list implemented by the incumbent operator in each country.

vi) Values stated in a foreign currency have been converted into euros using the **exchange rates** relating to 06/01/03.

vii) The tariffs set out for each country are charged by the **incumbent operator for the rental for the first circuit** and do not include any discounts.

viii) The additional options relating to some countries are set out in the following table:

Germany	Local tariff 2 for digital circuits of up to 10 Km in length. 34 Mbps "*node to node*" circuits. International digital circuits starting at the Berlin "*gateway"* with local access.
Austria	Local tariff for circuits of up to 10 km (64 Kbps and 1984 kbps). 34 Mbps circuits: "*standard tariff*" for a minimum period of 3 years. 2 Mbps circuits - "*standard tariff*"".
Belgium	Installation price applicable to trunk analogue circuits. Digital circuits between zones of average economic concentration. Average value for the installation of international analogue circuits.
Denmark	Tariff for the local area: over 1km; tariff for the neighbouring local area of up to 5 km; regional tariff when over 5 km; Trunk tariff when over 75 Km. Price for the installation of a 34 Mbps digital circuit for local circuit between 2 km and 3 Km.
Finland	National circuits include *modem* at the local ends. International analogue circuits for voice and data.
France	34 Mbps circuits: Zone A (between the major cities).
Portugal	Local circuits with a main link up to 10 Km.
Greece and Spain	Structured circuits
United Kingdom	Type A analogue circuits
Sweden	Installation of circuits with a length of over 40 Km. Trunk tariff for circuits between metropolitan networks.

ix) Prices were gathered relating to national and international circuits which are i) M1040-class analogue and ii) digital at 64 Kbps, 2 Mbps and 34 Mbps.

With regard to **international circuits**, the destinations considered were Spain, France, Germany, the United Kingdom, Brazil and the United States of America, as in previous studies.

In addition to these destinations, information was gathered relating to the prices of 64 Kbps and 2 Mbps international digital circuits, for the nearest destination and for the furthest destination vis-à-vis each country in the EU.

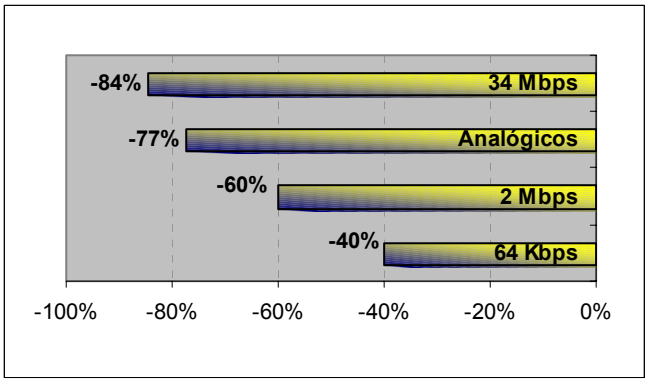
IV. Results

Below is a brief summary of the individual results per service:

A) Installation

The price charged by the Portuguese incumbent operator for installing circuits is significantly lower than the EU average for the categories of circuits considered. The greatest difference consists in the price for installing 34 Mbps circuits (84% lower than the average for the other operators), which is the second lowest in the EU, higher only than the price charged by the incumbent operator in Austria. As regards analogue circuits, the price of installation charged by PTC is the lowest in the EU.

Figure 1 – Difference in the price of Installation with regard to the average for the other incumbent operators in the EU

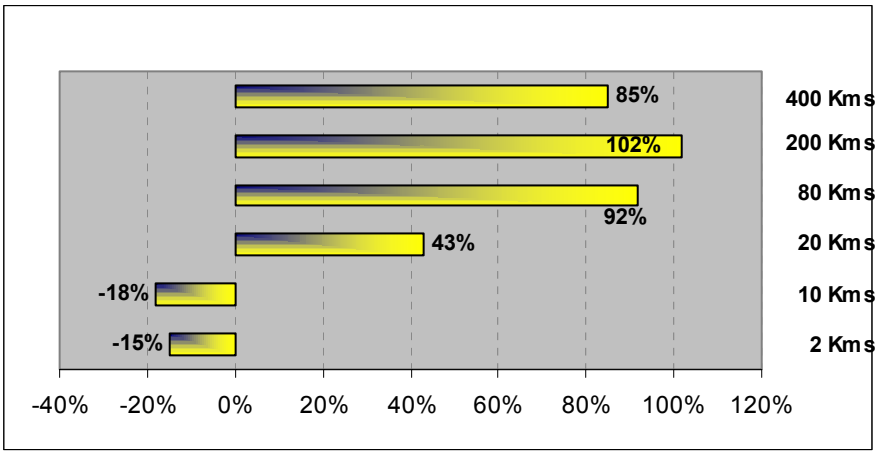


Annex 1 sets out the individual results per country.

B) Monthly rental for Analogue Circuits

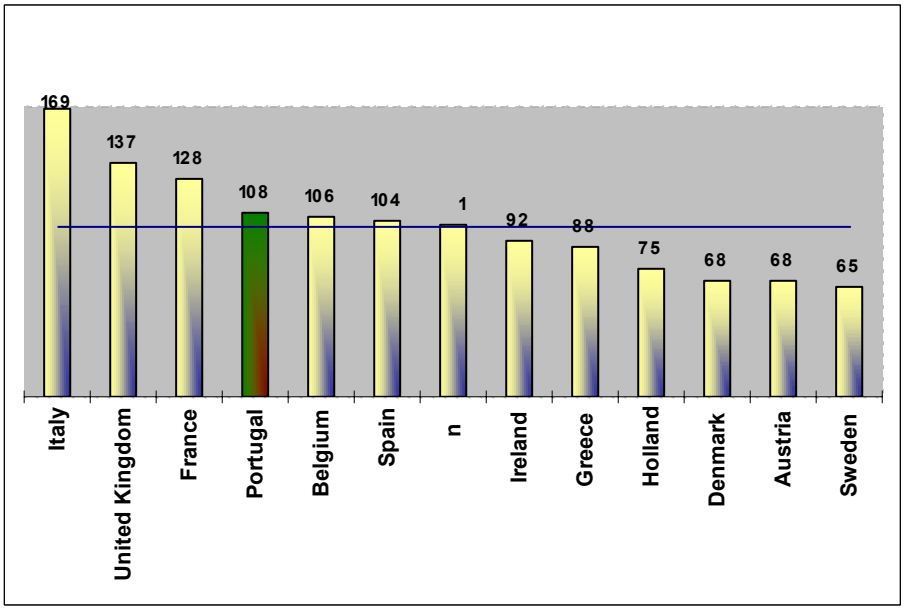
In Portugal, the value charged for the monthly subscription to an analogue circuit is lower than the average for short-distance circuits, and is higher for longer distances.

Figure 2 – Difference in the national price for a monthly rental for analogue circuits, with regard to the average for the other incumbent operators in the EU



Despite the fact that for longer distances the price differences are significant, owing to the fact that circuits of shorter distances make up the largest portion, the price of the basket of analogue circuits is just 8% higher than that levied in the other countries of the EU.

Figure 3 – Index of prices for the analogue circuit basket



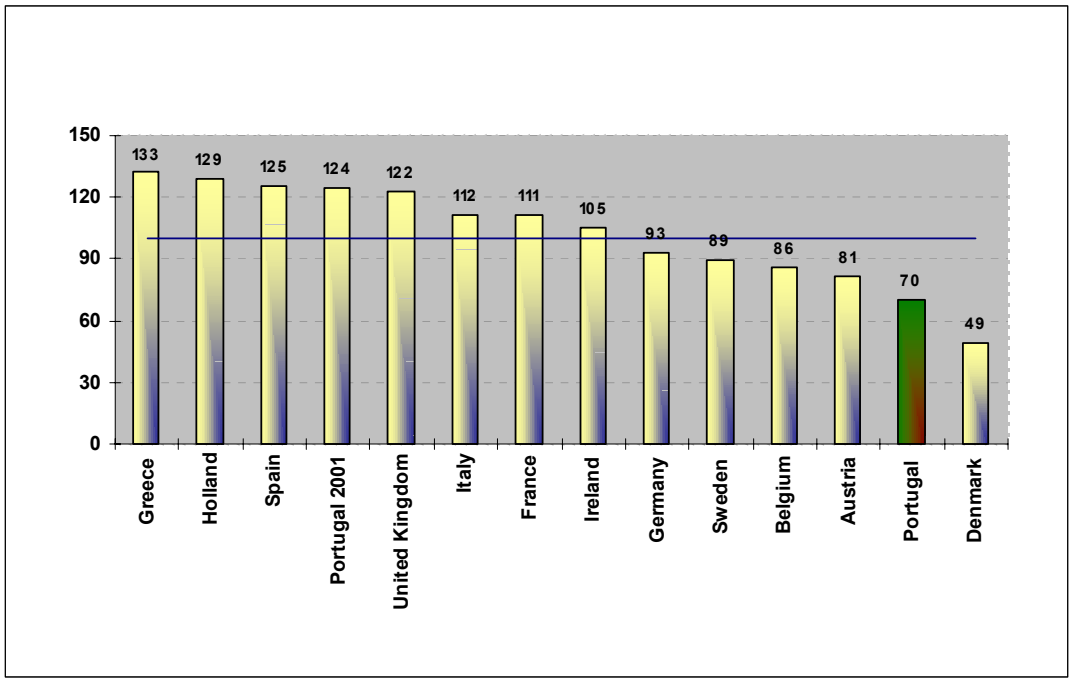
C) Monthly rental for Digital Circuits

With regard to national digital circuits, the prices offered by the incumbent operator in Portugal are generally lower than those charged in the other countries considered. The difference between that and the average price charged by the other operators is most significant for 64 kbps and 2 Mbps circuits with a length of 2 Km (–38% in both cases).

Only the price of 34 Mbps digital circuits for distances of 2 km and 10 km is above the average of the EU's other incumbent operators, by 18% and 1%, respectively.

The price of the basket of digital circuits (including 64 Kbps, 2 Mbps and 34 Mbps capacities) is 30% below the average prices charged in the other EU countries, and is the second most economical, surpassed only by the basket relating to Denmark.

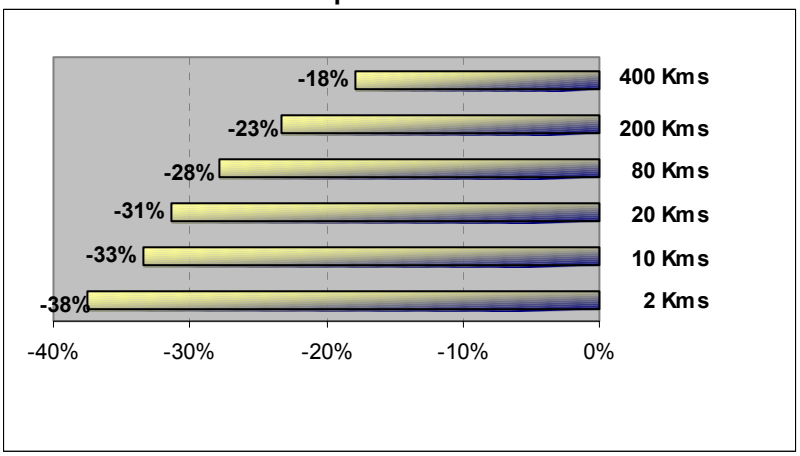
Figure 4 – Index of prices for the basket of national digital circuits (64 Kbps, 2 Mbps and 34 Mbps)



C1) Monthly rental forto 64 Kbps Digital Circuits

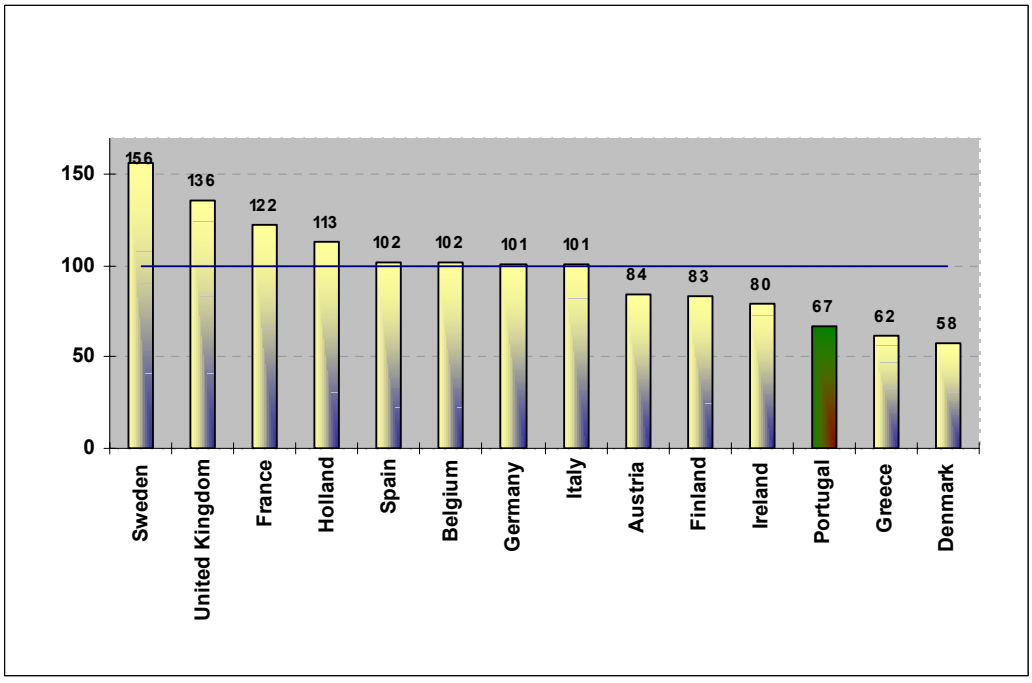
In this type of circuit, and for the distances considered, PTC charges prices lower than the average for the EU's other incumbent operators. With regard to circuits with a distance of 2 km, national prices are about 38% lower than the average, and the minimum difference is 18% (400 km).

Figure 5 – Difference in the national price for a monthly rental for 64 Kbps digital circuits, with regard to the average of the other incumbent operators in the EU



The basket of 64 Kbps digital circuits is the third most economical in the EU, 33% less than the average for baskets offered by the other operators considered.

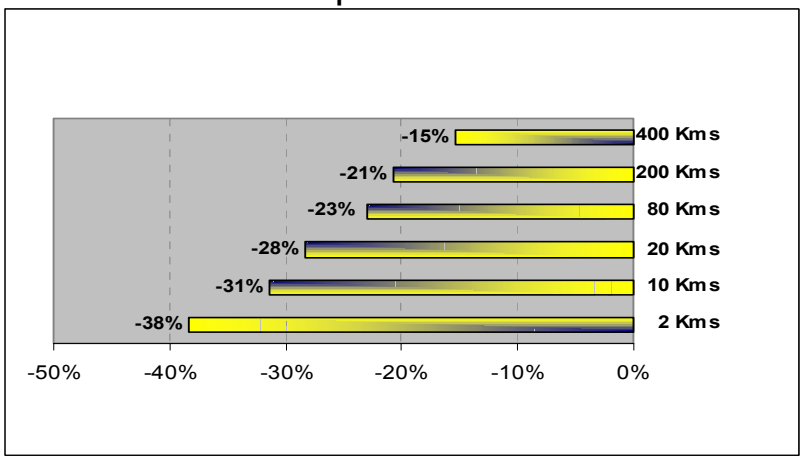
Figure 6 – Index of prices for the basket of 64 Kbps digital circuits



C2) Monthly Subscription to 2 Mbps Digital Circuits

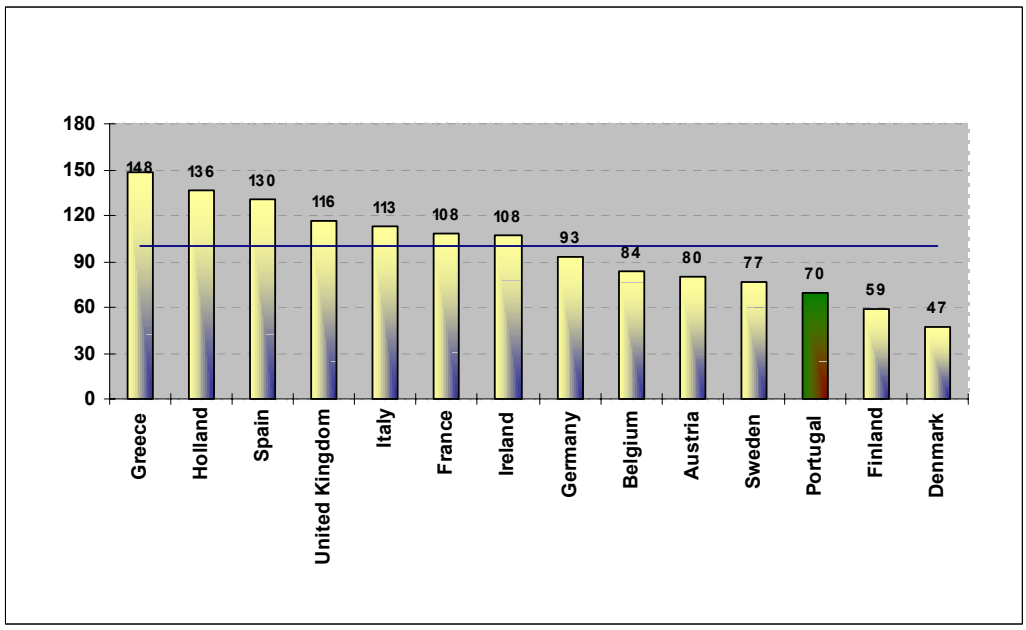
For this type of circuit, Portugal also charges prices, which are lower than the average in the other countries of the EU. The differences are most significant in circuits with a distance of 2 km, where PTC, amongst other similar operators, charges the third lowest price in the EU, surpassed only by the price charged by Austria TeleKom and by TeleDanmark.

Figure 7 - Difference in the national price for a monthly subscription to 2 Mbps digital circuits, with regard to the average of the other incumbent operators in the EU



The price of the basket of circuits with a 2 Mbps capacity is the third lowest charged by the EU's incumbent operators, around 30% below the corresponding average.

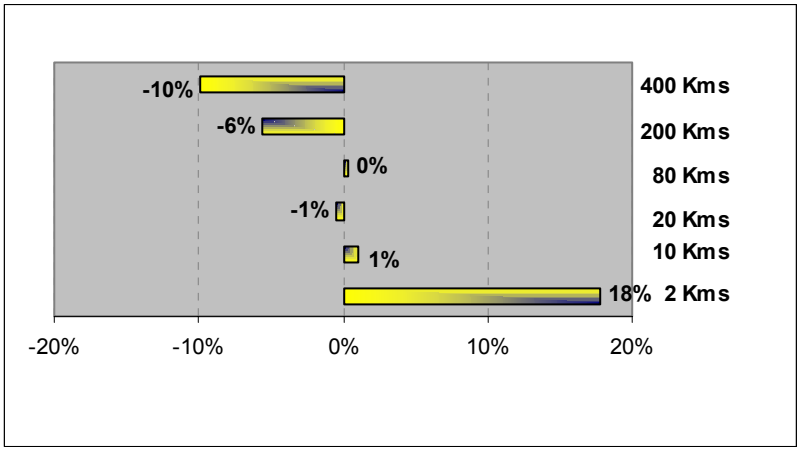
Figure 8 – Index of prices for the basket of 2 Mbps Digital Circuits



C3) Monthly rental for 34 Mbps Digital Circuits

As regards national circuits with a 34 Mbps capacity, the prices charged by PTC, which were considerably above the average prices levied by the other operators considered, are, in 2003, lower than or nearing those charged by the other operators considered. Only the monthly rental of short-distance circuits (2 km) is around 18% above average.

Figure 9 - Difference in the national price for a monthly rental for 34 Mbps digital circuits, with regard to the average of the other incumbent operators in the EU



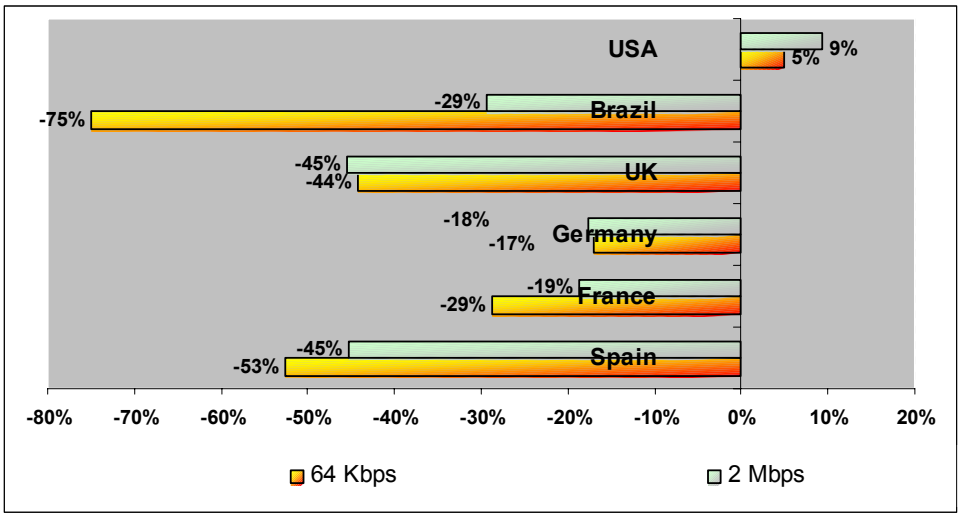
D) Monthly rental for International Circuits

The prices implemented by PT Comunicações for international circuits are generically lower than the average prices charged by the other operators, except with regard to 64 kbps and 2 Mbps circuits whose destination is the United States of America.

Within the categories analysed, those circuits whose destination is Brazil, United Kingdom, Germany, France and Spain, have prices lower than the average for the other operators considered.

As regards international circuits, the geographical proximity between countries is one of the main factors which influences the price of the circuit, and, within this scope, for those circuits whose destination is Spain and Brazil, PTC's subscription prices are significantly lower than the aforementioned average.

Figure 10 – Percentage difference, with regard to the average of the other incumbent operators in the EU, of the price of a monthly rental for international digital circuits whose destination is the countries identified and originating in the other countries of the EU



When the reciprocity[2] of the prices of international circuits is analysed, it can be seen that as regards 64 Kbps circuits, only those circuits whose destination is France have prices close to those charged for the opposite direction (rented from France Telecom). In the remaining cases analysed, the prices implemented by PTC are much lower than those of their European counterparts.

[2] Price comparison, for example, between Lisbon and Madrid, of equivalent circuits as charged by PTC and by Telefónica.

Figure 11- Prices of 64 kbps international circuits

Euros	Spain	France	United Kingdom	Germany
From Portugal	550	700	700	920
To Portugal	1.082	701	1.394	1.350
Difference (%)	-49%	0%	-50%	-32%

For 2 Mbps international circuits also, it can be seen that the prices for circuits terminating at the destinations identified are lower than the prices of equivalent circuits rented from the incumbent operators from those countries. The least significant difference relates to those circuits that connect Portugal and the United Kingdom.

Figure 12- Prices of 2 Mbps international circuits

Euros	Spain	France	United Kingdom	Germany
From Portugal	7.000	8.900	8.900	11.600
To Portugal	15.025	11.161	9.103	13.610
Difference (%)	-53%	-25%	-2%	-15%

In order to overcome, to a certain extent, the effect which geographic proximity between countries produces in terms of comparisons of the prices of international circuits, Figure 13 sets out the differences from the EU average prices charged by each incumbent operator for 64 Kbps and 2 Mbps international circuits terminating in the neighbouring Member State and in the furthest Member State. In order to define the countries considered to be neighbouring and furthest away from each Member State, we followed the criterion used by the European Commission in the Reports on the Implementation of the Telecommunications Regulatory Package. It is, however, important to emphasise that, when we consider the prices of circuits whose destination is the furthest country, this methodology benefits the countries of central Europe, given their geographical location.

Figure 13- Difference in prices of 64 kbps and 2 Mbps international circuits, to neighbouring countries and countries furthest away from each Member State, with regard to the EU average

	Difference from the EU average price for 64 kbps circuits to the		Difference from the EU average price for 2 Mbps circuits to the	
	Neighbouring Country	Furthest Country	Neighbouring Country	Furthest Country
Portugal (E;DK)[3]	-30%	-20%	-18%	-16%
Germany (F; EL)	61%	21%	14%	6%
Austria (D;EL)	nd	Nd	nd	nd
Belgium (F; EL)	2%	51%	8%	18%
Denmark (SWE; EL)	-51%	-12%	-68%	-34%
Spain (P; DK)	37%	-5%	76%	15%
Finland (SWE; EL)	-31%	41%	-41%	42%
France (B; EL)	-28%	-44%	29%	-26%
Greece (I; DK)	86%	52%	113%	61%
Holland (D; EL)	-19%	-32%	-13%	-20%
Ireland (UK; EL)	-46%	-9%	-57%	-9%
Italy (EL; DK)	15%	-28%	15%	-35%
Luxemburg (D;EL)	-53%	-45%	7%	-39%
United Kingdom (F; EL)	72%	-23%	-36%	-33%
Sweden (DK; EL)	-46%	39%	-45%	35%

By looking at Figure 13, we can see that the prices charged by the Portuguese incumbent operator for circuits with a 64 Kbps capacity to the nearest country (Spain) and to the furthest country in the EU (Denmark) are 30% and 20% lower than the average price, to equivalent destinations, as implemented by the EU's incumbent operators. With regard to 2 Mbps circuits, prices are 18% and 16% lower than the aforementioned average, to the neighbouring country and to the furthest country, respectively.

The majority of the EU's incumbent operators do not publish prices for 34 Mbps international circuits. It can also be seen that those incumbent operators, which do publish a price list for the aforementioned circuits, sometimes fail to provide prices for all the destinations. With regard to the above, the bilateral nature of the prices, in this type of circuit, can only be analysed for the destinations of Spain and Italy. In both cases, the prices of circuits rented to the incumbent

[3] (X;Y) equivalent to (Neighbouring Country; Furthest Country). Portugal- P; Germany - D; Austria – AUT; Belgium – B; Denmark – DK; Spain – E; Finland – FIN; France – F; Greece – EL; Holland – NL; Ireland – IRL; Italy – I; Luxemburg – L; United Kingdom – UK; Sweden -SWE

operator in Portugal and terminating in Spain or Italy are lower than the price of equivalent circuits rented from the incumbent operators in Spain and Italy, with particularly emphasis on the difference in price to the neighbouring country.

Figure 14- Prices available for 34 Mbps international circuits

Euros	Spain	Italy
From Portugal	40.000	72.600
To Portugal	105.177	89.025
Difference (%)	-62%	-18%

V. Conclusions

1. The prices charged by the incumbent operator in Portugal are, generally speaking, significantly lower than the average for all the other countries in the case of short-distance analogue circuits and of 64kbps and 2Mbps national digital circuits, and are slightly higher in some segments relating to higher capacities (34 Mbps), although there has been a considerable reduction in the price list applicable to this type of circuits. With regard to international digital circuits, it should be pointed out that the prices implemented by the Portuguese incumbent operator are generally below the average price charged by similar operators in the EU.

2. In Portugal, the price of the overall basket of national circuits (analogue, digital at 64 Kbps, 2 Mbps and 34 Mbps) is 29% lower than the average of the values applicable in the other EU countries, and is the second lowest amongst the EU's incumbent operators.

3. The price of the basket of analogue circuits is around 8% below the average, whilst the price of the basket of national digital circuits (digital at 64 Kbps, 2 Mbps and 34 Mbps) is 29% lower than the aforementioned average.

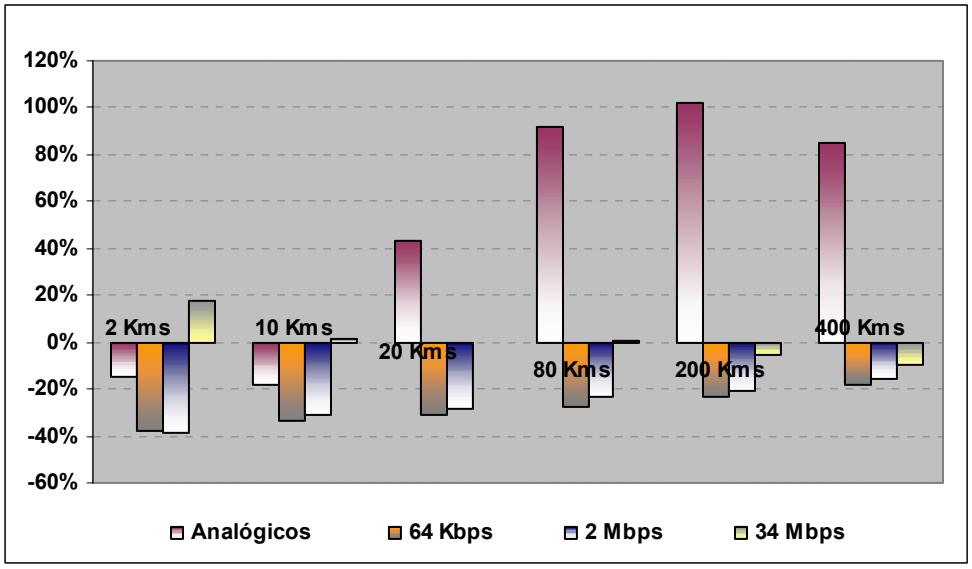
4. The basket of 64 Kbps digital circuits is the third most economical in the EU, 33% less than the average for the other operators considered.

5. The price of the basket of circuits with a 2 Mbps capacity is 30% lower than the average charged in the other EU countries, and also stands in third place vis-à-vis operators with the most economical baskets.

6. The installation of leased lines in Portugal is charged at values, which are substantially lower than the average for the other traditional operators, and the most significant difference is – 84% relating to the installation of a 34 Mbps national digital circuit.

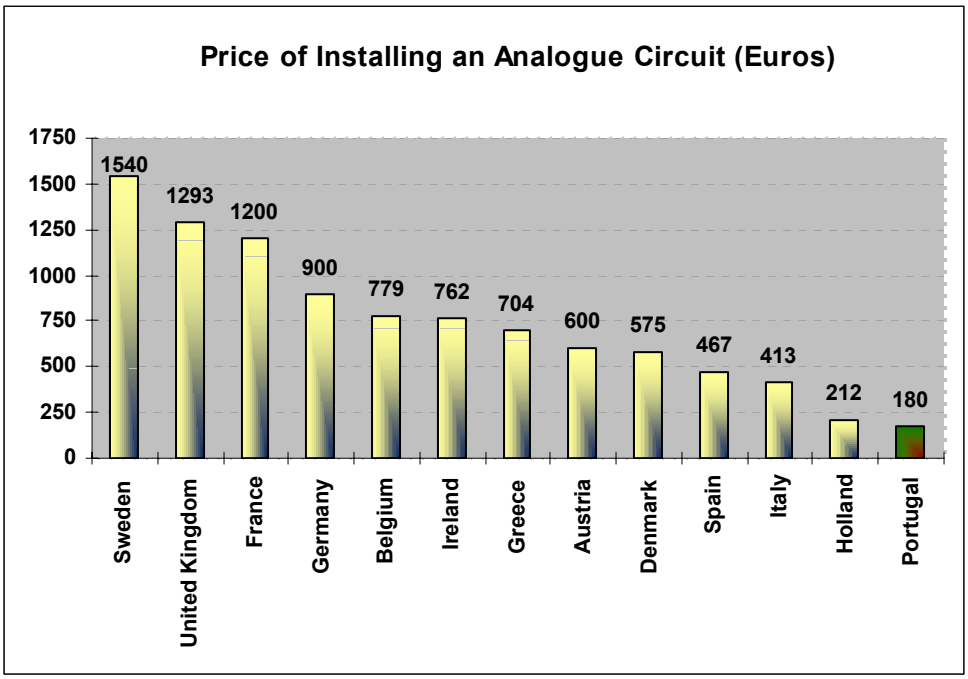
7. It is noted, generically, that the price of digital circuits is somewhat below the average price charged by the other operators. The exception to this is 34 Mbps circuits at a length of 2 km.

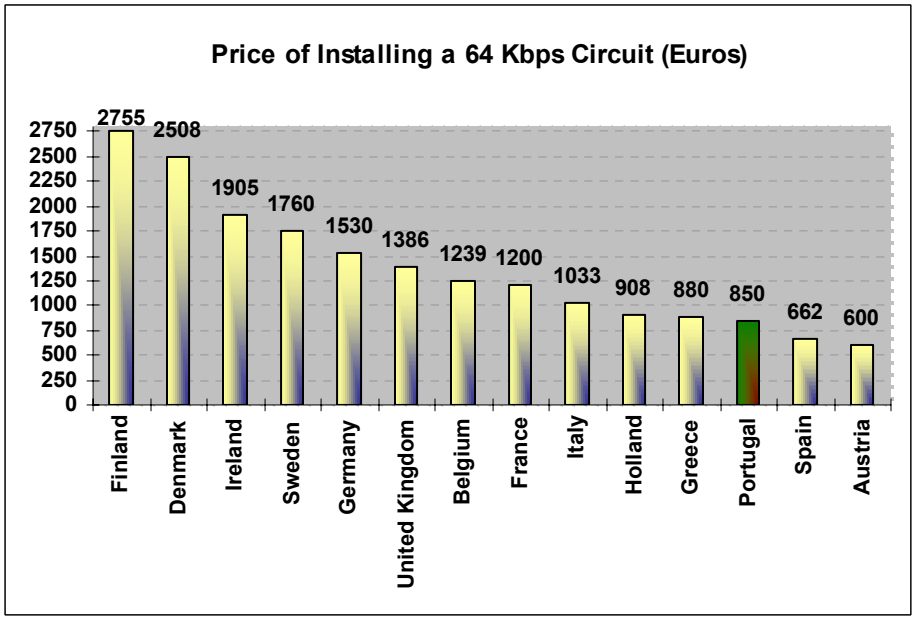
Figure 15 – Differences in the monthly subscription to the different types of circuit, with regard to the average for the other incumbent operators in the EU

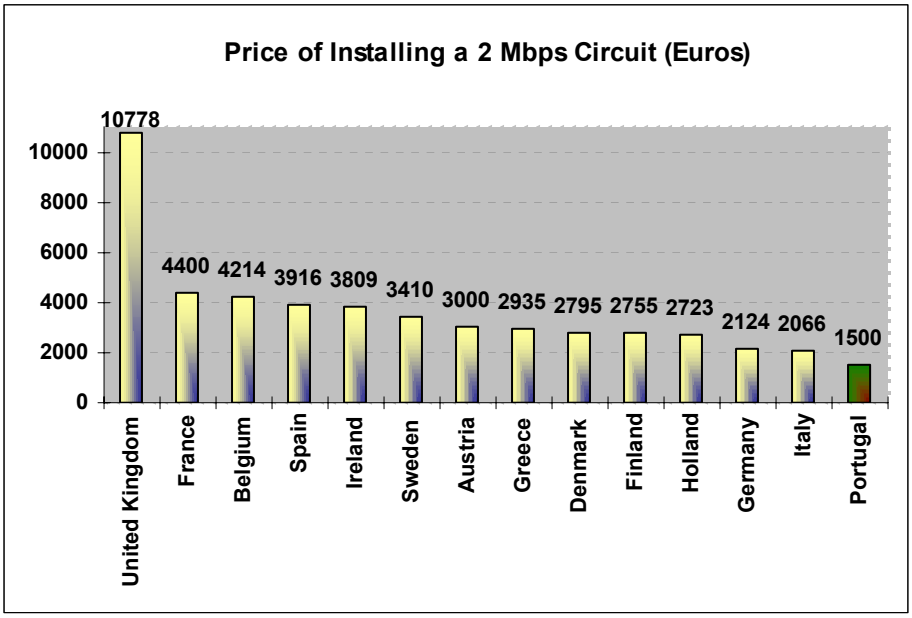


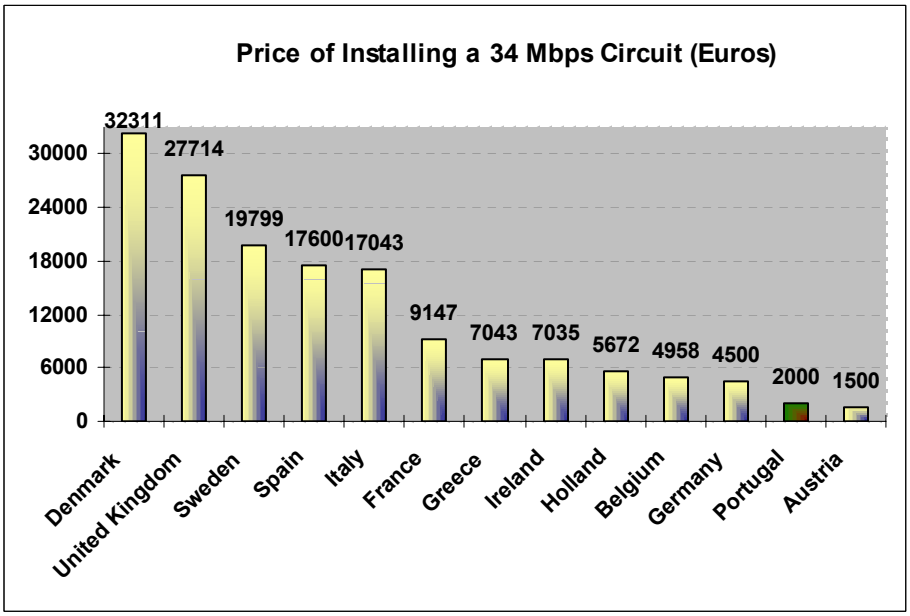
8. The average prices of 64 Kbps and 2 Mbps international circuits, for the six countries considered, are lower than the EU average, by 48% and 30%, respectively. As regards international circuits with a 34 Mbps capacity, the prices of circuits rented from the Portuguese incumbent operator and terminating in Spain or Italy are lower than the prices of the equivalent circuits rented from the incumbent operators in Spain and Italy, with special emphasis on circuits between Portugal and Spain, whose price as charged by PTC is 62% lower than that charged by Telefónica.

ANNEX 1 – Prices of installation in the EU

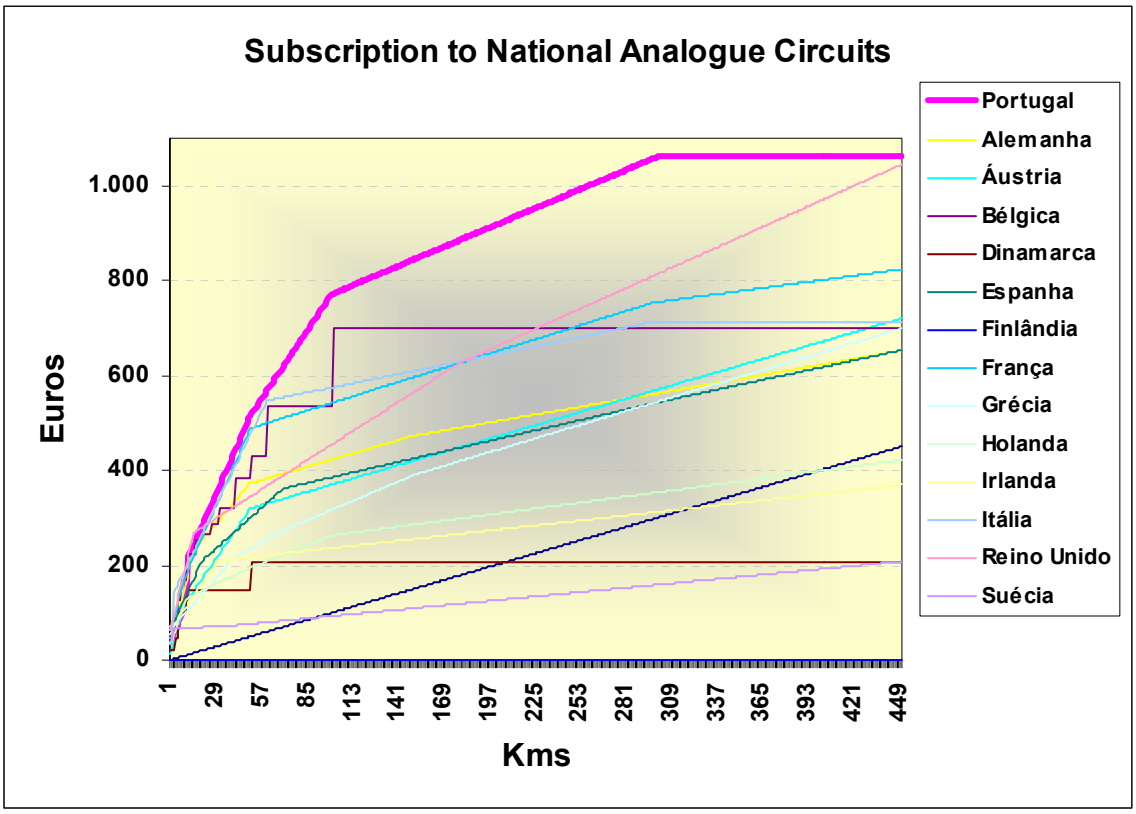


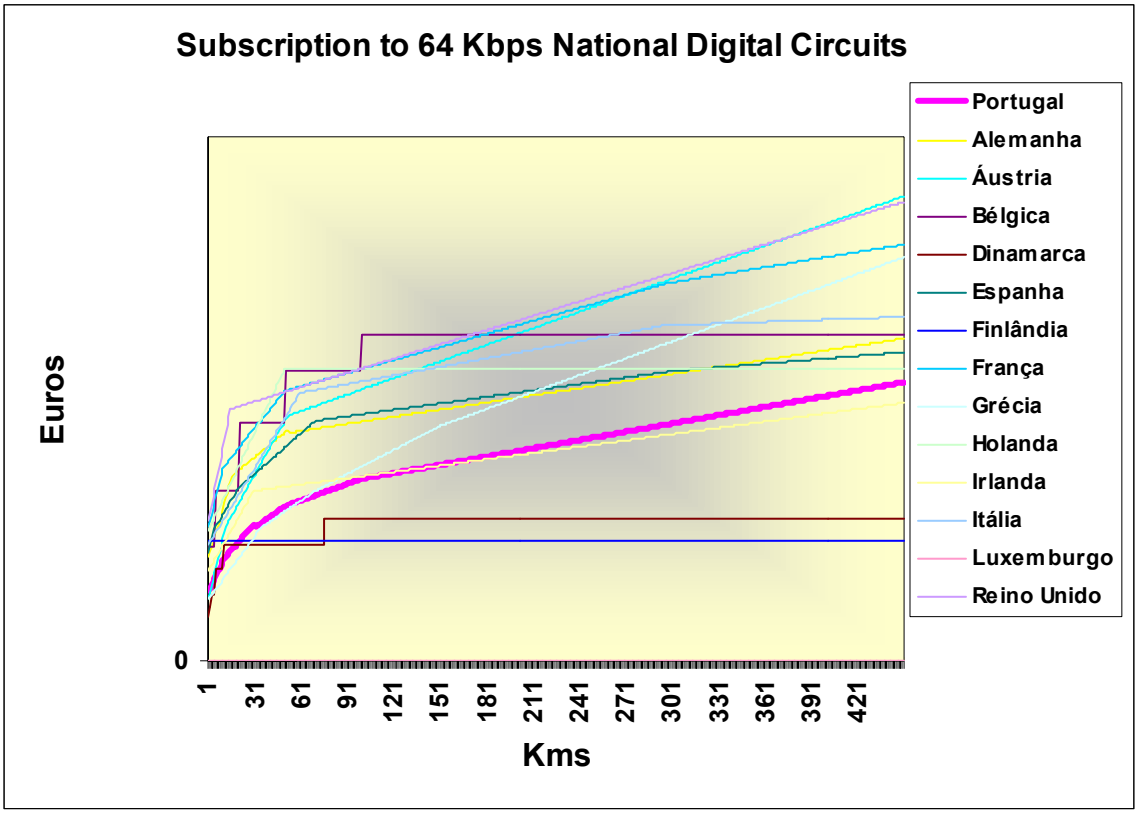


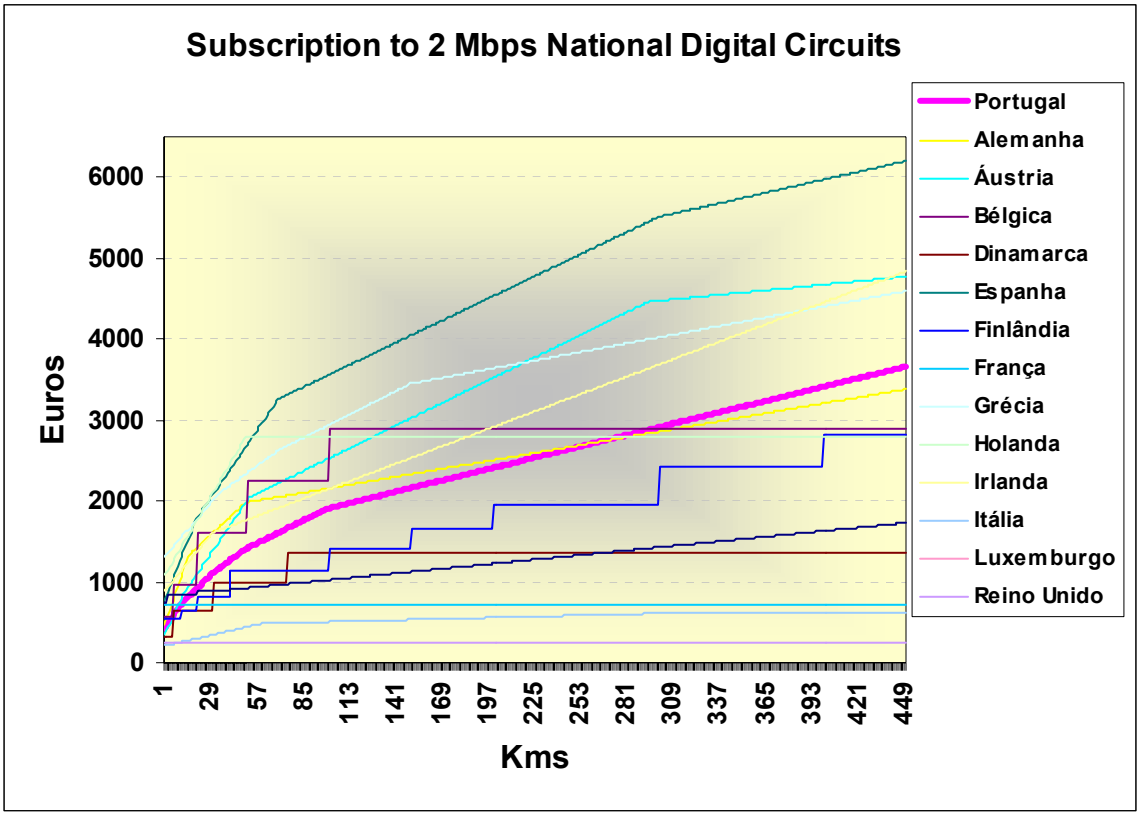

Price of Installing a 2 Mbps Circuit (Euros)
10778
4400
4214
3916
3809
3410
3000
2935
2795
2755
2723
2124
2066
1500
10000
8000
6000
4000
2000
0
United Kingdom
France
Belgium
Spain
Ireland
Sweden
Austria
Greece
Denmark
Finland
Holland
Germany
Italy
Portugal

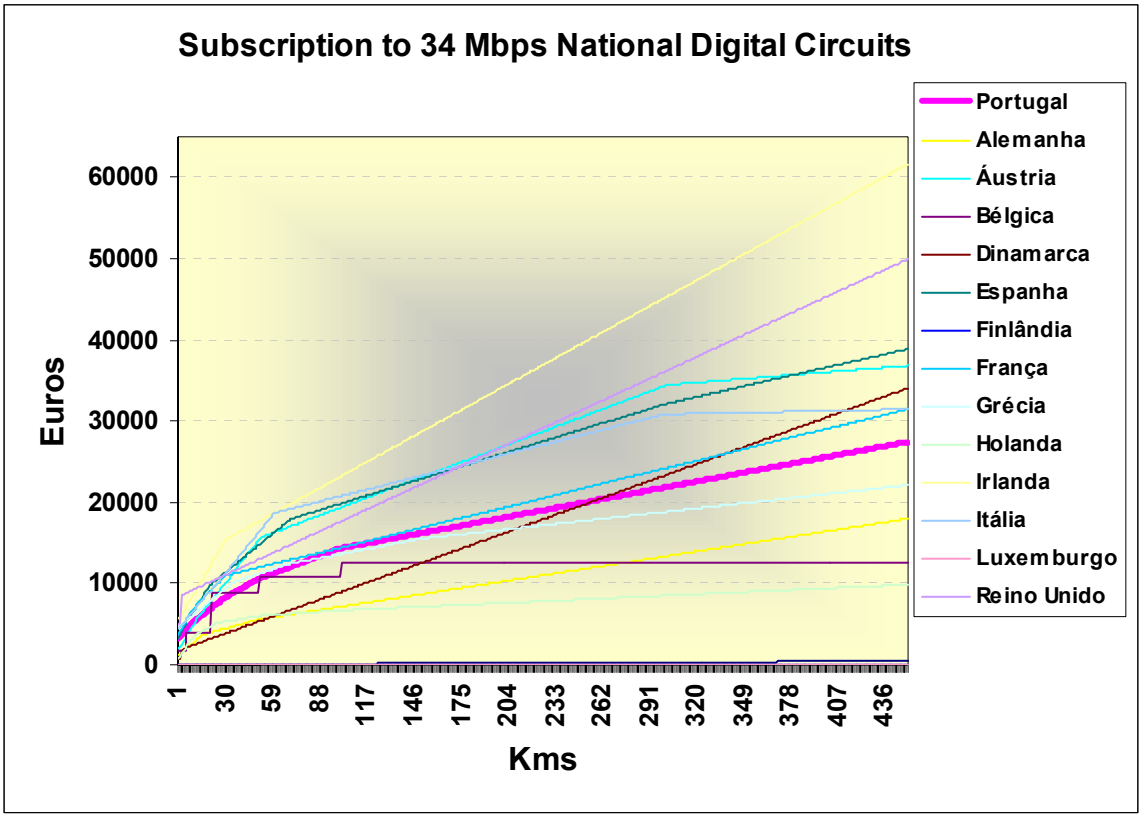

Price of Installing a 34 Mbps Circuit (Euros)
32311
27714
19799
17600
17043
9147
7043
7035
5672
4958
4500
2000
1500
30000
24000
18000
12000
6000
0
Denmark
United Kingdom
Sweden
Spain
Italy
France
Greece
Ireland
Holland
Belgium
Germany
Portugal
Austria

ANNEX 2 – Prices of monthly subscription in the EU




Subscription to 64 Kbps National Digital Circuits
Euros
0
1
31
61
91
121
151
181
211
241
271
301
331
361
391
421
Kms
Portugal
Alemanha
Áustria
Bélgica
Dinamarca
Espanha
Finlândia
França
Grécia
Holanda
Irlanda
Itália
Luxemburgo
Reino Unido


Subscription to 2 Mbps National Digital Circuits
Euros
6000
5000
4000
3000
2000
1000
0
1
29
57
85
113
141
169
197
225
253
281
309
337
365
393
421
449
Kms
Portugal
Alemanha
Áustria
Bélgica
Dinamarca
Espanha
Finlândia
França
Grécia
Holanda
Irlanda
Itália
Luxemburgo
Reino Unido


Subscription to 34 Mbps National Digital Circuits
Euros
60000
50000
40000
30000
20000
10000
0
1
30
59
88
117
146
175
204
233
262
291
320
349
378
407
436
Kms
Portugal
Alemanha
Áustria
Bélgica
Dinamarca
Espanha
Finlândia
França
Grécia
Holanda
Irlanda
Itália
Luxemburgo
Reino Unido