

**Mini-estudio de caso de 2003 sobre
Botswana**

**Experiencia reciente con
respecto a los conflictos de
interconexión**



Unión Internacional de Telecomunicaciones

Este mini estudio de caso ha sido realizado por Robert Bruce y Rory Macmillan de Debevoise & Plimpton, Londres, R.U. Las opiniones reflejadas en este documento son las de los autores y no reflejan necesariamente las de la UIT, sus Miembros o del Gobierno de Botswana.

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Este estudio forma parte de una serie de cinco estudios sobre la solución de controversias en la interconexión llevadas a cabo la UIT. Para más información, sírvase consultar el sitio: <http://www.itu.int/ITU-D/treg>

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I. Introducción

Con una población que ronda 1,7 millones de personas, el PIB de Botswana es de aproximadamente 32 mil millones de pula (1,00 de BWP = 0,20 USD). En el sector de las telecomunicaciones hay un operador de línea fija con cerca de 140 000 líneas fijas, una densidad telefónica en torno al 8,2%, dos operadores móviles que cuentan con unos 460 000 abonados y una tasa de penetración cercana al 27,3%.

Botswana tiene una buena y bien merecida reputación a este respecto, pues ha sido uno de los primeros países de la región africana en crear un órgano de reglamentación independiente: el Organismo de Reglamentación de las Telecomunicaciones de Botswana (BTA). En 1999, el BTA establece y financia su presupuesto operativo y administra la concesión de licencias. En 1999, resolvió su primer conflicto de interconexión que enfrentaba a la Corporación de Telecomunicaciones de Botswana (BTC) y a los dos principales operadores de telefonía celular del país, Mascom Wireless y Vista Cellular, mediante su Fallo número 1.

El consiguiente acuerdo de interconexión al que llegaron la BTC y Mascom y Vista establecía tasas en función del reparto de ingresos, que seguirán vigentes durante un periodo de 24 meses a partir del 17 de febrero de 1998. Antes de que expirase el acuerdo, las partes decidieron ampliar su validez; posteriormente, en marzo de 2001, entablaron negociaciones para revisarlo. Sin embargo, las negociaciones entre la BTC y Mascom quedaron estancadas, y el 5 de julio de 2002 ambas partes solicitaron al BTA que resolviese un nuevo conflicto de interconexión. En respuesta a dicha petición, el 26 de febrero de 2003, el Sr. C.M. Lekaukau, Presidente del BTA pronunció el Fallo número 1, de 2003 (véase el Anexo 1 ("Fallo")), el cual abrió camino a decisiones posteriores, ya que establece principios muy detallados para fijar nuevas tarifas de interconexión basándose en criterios internacionales.

Este Fallo, que debería ser objeto de un estudio pormenorizado por parte de otros organismos de reglamentación, se analiza en detalle en la sección siguiente. Su particularidad reside en el hecho que por primera vez un organismo de reglamentación africano adoptaba criterios de la Unión Europea (el Organismo Nacional de Reglamentación de las Telecomunicaciones de Marruecos (ANRT) los utilizó anteriormente pero no de forma exclusiva). Si bien el Fallo resolvía únicamente un conflicto entre Mascom y la BTC, y dejaba al margen a los demás operadores, la extensión y calidad del razonamiento expuesto en dicha decisión indica la forma en que el BTA podrá responder a estos problemas en el futuro. Así pues, el Fallo sirve de precedente para resolver de manera más generalizada conflictos que puedan surgir en relación con los acuerdos de interconexión.

II. Fallo número 1, de 2003, de la BTA

(a) Antecedentes del conflicto sobre tasas de terminación

La controversia entre la BTC y Mascom giraba entorno a las modificaciones propuestas con respecto a las tasas de terminación que se aplicarían a cada parte por la terminación en la red de la otra parte. Básicamente, Mascom pretendía ampliar las tasas establecidas en el Fallo número 1, de 1999, de la BTA, mientras que la BTC era partidaria de introducir cambios significativos en las tasas de terminación mensuales de la red móvil y fija, como se expone a continuación:

Cuadro 1: Tasas de terminación de llamada (pula de Botswana)

	Tasas aplicadas en el momento del conflicto (propuesta de Mascom)	Tasas propuestas por la BTC
Terminación en la red de la BTC:		
- Hora punta	24.0	35.0
- Hora no punta	19.1	25.0
Terminación en la red de Mascom:		
- Hora punta	96.0	75.0
- Hora no punta	76.9	58.0

Nota: 1,00 BWP = 0,20 USD

(b) Principios básicos del fallo número 1, de 2003, del BTA

En este Fallo se destacan los distintos factores jurídicos y políticos a los que obedece la decisión tomada en febrero de 2003, y se analizan pormenorizadamente los distintos argumentos y factores sopesados por el BTA.

Base y marco jurídicos para tratar los conflictos de interconexión

En el Fallo se tomó en consideración la base y el marco jurídicos vigentes para abordar los conflictos de interconexión en Botswana, incluido el Artículo 47 de la Ley de Telecomunicaciones de 1996 ("la Ley"), las licencias de ambas partes, el acuerdo de interconexión concertado a raíz del Fallo de 1999 y la Política de Telecomunicaciones de Botswana, adoptada en 1995. La Ley dispone que el BTA tiene la facultad de tomar decisiones sobre conflictos de interconexión y de fijar las condiciones que juzgue "justas y razonables" al respecto. El BTA tiene un amplio criterio para decidir lo que es justo y razonable y puede considerar una amplia gama de factores; por ejemplo, un considerable poder comercial, la posibilidad de repartir ingresos, el análisis comparativo, la promoción del acceso universal, la base de abonados, la transparencia, la orientación a los costos, una tasa de inversión razonable, la no discriminación y la estructura del mercado. En el Fallo se señaló también que las licencias de la BTC y Mascom incluyen requisitos que no vulneran el Artículo 47 de la Ley.

Análisis de costos

En el acuerdo de interconexión entre las partes se admitía que las tasas de interconexión se basarían en los costos, aunque se señalaba que, como es posible que las cifras correspondientes a los costos no se encuentren disponibles a corto plazo, debería utilizarse un método diferente. Si bien la idea era basarse en los costos, el acuerdo estipulaba que la interconexión debería dar lugar a una rentabilidad razonable de los activos y los recursos, fomentar la utilización de la red y no obstaculizar el crecimiento de los servicios celulares (Artículo 18 del Fallo). En el Fallo se confirmaba que las tasas deberían corresponder a lo que se ha dado en llamar "la tríada de la interconexión": tasas justas para los operadores, justas para los usuarios finales y acordes con el mandato del BTA.

En el Fallo se tomaron en consideración tres de los principales modelos para abordar el tema de la interconexión: reparto de ingresos, retención íntegra de tasas de origen y tasas por la utilización de la interconexión. Si bien se reconoció que el Fallo inicial de 1999 se había basado en el modelo de reparto de ingresos, se llegó a la conclusión de que esas disposiciones se basaban en negociaciones que reflejaban el carácter relativo del poder comercial de las partes y que el modelo tendía a generar discriminación y conflictos entre los operadores en vez de una competencia dinámica en cuanto a las tarifas aplicables a los consumidores. En el Fallo se indicó que había tres tipos de tasas de interconexión en función del origen, la terminación y el tránsito, y se concluyó que las tasas, por el uso de la interconexión deberían constituir la base de un nuevo acuerdo de interconexión que se debería centrar de forma más generalizada en las tasas de terminación y dejar al margen las tarifas abonadas por los consumidores.

Confianza en el análisis comparativo

Mediante el Fallo se rechazó el intento de Mascom de instar al BTA a recurrir a la relación tasas de terminación fijas/móviles de los países africanos vecinos. Se llegó a la conclusión de que estas relaciones y las tasas de terminación implícitas se basaban en el reparto de ingresos y no en acuerdos de interconexión eficaces. Se examinaron análisis comparativos y metodologías de costos, en la medida en que constituían dos amplios enfoques para fijar las tasas de interconexión. Se concluyó que los costos históricos o del pasado no reflejaban las tendencias tecnológicas del momento y, por lo tanto, no servirían para fijar eficazmente los precios. Sin embargo, los costos incrementales a largo plazo (LRIC) o los costos incrementales medios a largo plazo (LRAIC) constituían una opción que daba cuenta de los costos en los mercados de competencia. Asimismo, en el Fallo se argumentaba que el análisis comparativo podría representar una herramienta de reglamentación útil, ya que se basaba en resultados de países en cuyos mercados imperaba una competencia considerable, o donde se habían aplicado metodologías de costos LRIC o LRAIC. En el Fallo se analizó el plan de la Unión Europea (UE) para desarrollar parámetros de comparación de las tasas de interconexión en distintos niveles de la red.

Como parte del expediente, la BTC presentó en las actas del procedimiento un estudio de costos histórico. A su vez, Mascom comunicó datos de la UE y de países en desarrollo que reflejaban tendencias a la baja en las tasas de terminación. El BTA concluyó que en el contexto del procedimiento pendiente no era viable diseñar un modelo de costos para las tasas de terminación y si establecían un modelo de este tipo para la BTC, sería necesario que Mascom contase con un modelo similar.

Selección de datos comparativos

El BTA examinó con detenimiento las distintas formas en que se podrían utilizar los datos de referencia y, en particular, los países que se considerarían en el análisis comparativo. Al analizar las posibles fuentes de los datos comparativos, se tuvo en cuenta una serie de factores. En primer lugar, se rechazó la utilización de datos de países que no se regían por el principio seguido en Botswana de "quien llama paga". En segundo término, se rechazó la utilización de precedentes de países africanos vecinos, ya que se adujo que en ninguno de estos países la competencia era importante en lo que se refiere a las tasas de terminación y que no se seguían los principios LRIC para fijar tasas de interconexión (Artículo 35 del Fallo). Por último, se concluyó que, a la vista del marco de directivas de la UE, los países de la UE representaban un "marco regulador relativamente homogéneo, lo que facilitaba las comparaciones entre los mismos y los países no miembros de la UE". En el Fallo se señaló también que la metodología comparativa de la UE había sido "ensayada y probada" y que numerosos organismos de reglamentación de la UE habían definido y aplicado metodologías de costos tales como LRAIC. Por consiguiente, los países de la Unión Europea constituían "un buen ejemplo de países que han alcanzado o alcanzarán tasas de terminación orientadas a los costos eficaces para las redes fijas ..." (Artículo 37 del Fallo).

Regulación de las tasas de terminación de los servicios móviles

Por otra parte, en el Fallo se indicaba que "los organismos de reglamentación tienden cada vez más a favorecer la reglamentación de las tasas de terminación de los servicios móviles", sobre todo en el Reino Unido y Austria. Se señaló también que otros organismos de reglamentación de países de la UE, como Suecia, Francia y Bélgica, están utilizando un análisis comparativo eficaz para autorizar importantes reducciones de las tasas de terminación de los servicios móviles.

Es significativo que en el Fallo se reconozca que, habida cuenta de las diferentes condiciones de desarrollo económico y sectorial en la UE, optar por tasas de terminación comparativas para la BTC y Mascom podría prestarse a fijar tasas por debajo de costos eficaces orientados al futuro. No obstante, en el Fallo se reconoció expresamente dicho riesgo como demuestra el hecho de que se establecieran periodos de transición con miras a garantizar la eficacia de las nuevas tasas.

Tasas de terminación de los servicios fijos: Utilización de un promedio de tasas de los países de la Unión Europea

En el Fallo se siguió la línea europea de análisis de los distintos niveles de interconexión, atendiendo a la jerarquía del lugar de la red en que se terminaba la llamada y la distancia que debía

recorrer la llamada -"local" representaba la interconexión de la central local; "tránsito simple" la interconexión a nivel "metropolitano", incluida la utilización de un conmutador tándem y "doble tránsito" o "nacional" permitía el acceso de todos los clientes de la red e incluía enlaces en tándem de al menos 200 kilómetros. En el fallo se concluyó que Botswana debería utilizar el nivel de interconexión "nacional", en contraposición con las tasas de interconexión locales o de tándem simple, para calcular las tasas de terminación. Además, se consideró que una media de los quince Estados Miembros de la UE constituiría una "base justa y razonable" a partir de la cual se podrían determinar las tasas de terminación de red fija de la BTC.

Tasa de terminación de los servicios móviles: Utilización de las tasas correspondientes a las mejores prácticas de la Unión Europea

Resulta interesante comprobar que, en las conclusiones del Fallo se indica que el promedio de todos los países de la Unión Europea no constituye una metodología de referencia eficaz en lo que se refiere a las tasas de terminación de la red de servicios móviles ya que muchos de estos países no han acabado de introducir la reglamentación de la terminación de servicios móviles basada en los costos. En el Fallo se optó, en cambio, por la media o punto medio de la serie de las "mejores prácticas actuales", sin precisar su fuente. A la vista del nivel de costos más elevado prevaleciente en cuanto a las tasas, se concluyó que sería razonable utilizar tales tasas de forma transitoria con el fin de que las tasas de terminación comparativas de Mascom sean eficientes.

Periodo de transición

Seguidamente, en el Fallo se analizó el modo de enfocar el periodo de transición, dado que los niveles de tasas propuestos estaban muy por debajo de las tasas vigentes. Se reconoció explícitamente que habría que establecer un equilibrio entre la rápida aplicación de los objetivos de su política de reglamentación y las posibles repercusiones negativas con respecto a los imperativos financieros de los operadores. Se declaró que "los objetivos de reglamentación precisan un periodo de aplicación breve, mientras que las necesidades financieras pueden requerir un periodo más extenso" (Artículo 41 del Fallo).

A continuación, se resumió el enfoque normativo que había de aplicarse a las tasas de terminación de servicios fijos de BTC, así como a las tasas de terminación de servicios móviles de Mascom.

Cuadro 2: Tasas impuestas por el fallo del BTA de febrero de 2003 (pula de Botswana)

Operador	Fecha efectiva hasta el 29/02/04	A partir del 01/03/04
BTC		
Hora punta	15.0	11.0
Hora no punta	12.0	8.8
Mascom		
Hora punta	85.0	75.0
Hora no punta	68.0	60.0

Nota: 1,00 BWP = 0,20 USD

El Fallo permanecerá en vigor durante 24 meses efectivos a partir de la fecha en que se pronunció. Las partes serán libres de concertar un acuerdo que no infrinja, mientras estén en vigor los principios fundamentales del Fallo y que deberán ser aprobado por el BTA. Por lo que hace a la revisión judicial, las partes podrán apelar al Tribunal Superior, de conformidad con el Artículo 56 de la Ley.

(c) Observaciones relativas al Fallo N° 1 de 2003

El Fallo revela un enfoque pragmático y facilitador con respecto a las funciones del organismo de reglamentación nacional. El BTA intervino en el conflicto, únicamente debido a que las partes de un procedimiento de interconexión anterior no lograron convenir en las modificaciones del correspondiente acuerdo. Durante el procedimiento, se observó que el BTA intervino activamente asesorando a las partes para que aplicasen conjuntamente un nuevo enfoque a la interconexión, basándose en las tasas de uso de la interconexión, y no en el acuerdo de reparto de ingresos, como era el caso en el acuerdo de interconexión original. Asimismo, la idea era utilizar los recursos de por lo menos una de las partes, Mascom, para generar datos comparativos de referencia con el fin de utilizarlos en el procedimiento, aunque, por razones de principio finalmente, se recurrió a otras fuentes de información.

En segundo lugar, si bien es cierto que existen elementos que evidencian una "justicia en bruto" en la utilización de datos comparativos no hay duda de que el BTA intentó utilizar dichos datos con el fin de alcanzar sus objetivos siguiendo un enfoque preciso. Escogió datos de referencia de la UE, ya que procedían de un marco relativamente riguroso y homogéneo, y rechazó la utilización de datos comparativos para los países africanos vecinos por temor de que sus acuerdos de interconexión de referencia se basasen en acuerdos de reparto de ingresos derivados de negociaciones, y no en los principios LRAIC.

En tercer lugar, por haber utilizado los datos de referencia de la EU, para procurar establecer disposiciones más eficaces en materia de fijación de precios, el BTA demostró sensatez y buen juicio en cuanto a la aplicación de las nuevas normas de referencia. Por ejemplo y como se ilustra en el cuadro anterior, el BTA estipuló dos etapas para los nuevos niveles recomendados de tasas de terminación; la primera de ellas comenzaría en la fecha efectiva del fallo y la segunda en marzo de 2004. En este sentido, el BTA trató de equilibrar sus prioridades institucionales para facilitar la rápida introducción de nuevas iniciativas de reglamentación y la inquietud suscitada por los imperativos financieros de BTC y Mascom.

Asimismo, utilizó con moderación los análisis comparativos de la UE, recurriendo a tasas de terminación a nivel nacional y no local, puesto que reflejaban con mayor fidelidad la situación global y, concretamente, de la competencia en el mercado de Botswana frente a lo que sucede en economías más desarrolladas.

(d) Otros aspectos del fallo

Existen al menos dos ámbitos en los que tal vez convenga realizar una evaluación y un análisis más pormenorizados, a la vista de las repercusiones del nuevo enfoque del BTA, considerando éste en su sentido más amplio.

Fomentar la mancomunicación de información entre los organismos reguladores, la UE y las organizaciones regionales

El primero de estos ámbitos guarda relación con el proceso mediante el cual los organismos de reglamentación nacionales pueden acceder a los datos más recientes y fiables sobre los acuerdos de interconexión en vigor. Por ejemplo, el BTA ilustra el interés que puede revestir utilizar datos de la UE para los organismos de reglamentación nacionales que se encargan de los sectores de las telecomunicaciones en transición y de dar aplicación a los nuevos mandatos de reglamentación. Por ello, tal vez convenga promover un diálogo más preciso entre la Comisión Europea -que compila anualmente grandes cantidades de datos de cada sector en relación con sus informes sobre la aplicación del marco de la UE- y los organismos de reglamentación de países con nuevos mercados, para quienes todos o parte de estos datos pueden resultar muy útiles a la hora de realizar sus tareas. Concretamente, la Comisión Europea publica índices de interconexión nacionales, incluidos de fijo a

fijo y de fijo a móvil, precios del bucle local desagregado, tarifas al por menor y gran cantidad de otros datos procedentes de los Estados Miembros. Las tasas de interconexión de la UE publicadas en diciembre de 2002 figuran en el Anexo 2 a este Informe. En el sitio web de la Sociedad de la Información de la Unión Europea (véase el Anexo 2) pueden verse otros datos.

Por otra parte, hace tiempo que diversos organismos de reglamentación de países de la UE, tales como el Organismo Nacional de TI y Telecomunicaciones (NITA) de Dinamarca vienen utilizando los datos de referencia y proporcionan a menudo asistencia a organismos de reglamentación de países en desarrollo. Estas experiencias podrán desarrollarse y extenderse para intensificar la asociación con organismos de reglamentación interesados en datos de referencia recopilados y en los conocimientos prácticos que exigen su recogida. Además, quizá sea necesario realizar mayores esfuerzos para habilitar a las entidades reglamentadas para proporcionar esos datos a los organismos de reglamentación nacionales. Asimismo, los organismos regionales de reglamentación pueden también plantearse la conveniencia de recoger y publicar datos sobre sus regiones respectivas. Con frecuencia los operadores de los nuevos mercados son titulares o mantienen relaciones de afiliación con operadores experimentados en muchos mercados internacionales. Cabría esperar que tales operadores ofrezcan datos de referencia útiles, así como análisis e información que faciliten la aplicación en un contexto nacional de estudios efectuados en el extranjero.

Crear modelos LRIC/LRAIC

En segundo lugar, puede ser útil diseñar en colaboración consultiva como complemento de la recogida de información de referencia, modelos LRAIC o LRIC para la BTC. La experiencia que han tenido otros organismos de reglamentación nacionales como el NITA de Dinamarca¹ es un buen ejemplo de cómo se pueden desarrollar esos modelos gracias a la participación del operador tradicional y de otros operadores competidores. La posibilidad de que dicha experiencia signifique una contribución importante al BTA puede depender, evidentemente, del grado de interés que pueden tener los operadores distintos de la BTC para prestar asistencia al BTA, así como del acceso a la información pertinente por parte de dichos operadores. Estos modelos de costos a largo plazo pueden ser para el BTA otra herramienta que le permita evaluar y utilizar eficazmente datos externos para adoptar un criterio de costos.

III. Otras novedades interesantes

(a) Desarrollo de acuerdos de interconexión de móvil a móvil

Uno de los aspectos del panorama actual del BTA es el establecimiento de tarifas de interconexión de móvil a móvil entre Mascom y Vista Cellular, respectivamente, el segundo operador y el más pequeño de Botswana. En estos momentos, no existe ningún acuerdo entre los dos operadores pero sí un acuerdo de interconexión *de facto*, basado en la retención íntegra en origen. El BTA está alentando a esos operadores a que mantengan negociaciones comerciales, pero existen numerosos obstáculos para ello; por ejemplo lo que sostiene uno de los dos operadores en el sentido de que ambos deberían pagarse por los servicios prestados. Por otro lado, no hay confianza entre ellos con respecto a las cifras de tráfico utilizadas.

Si bien el BTA se encuentra limitado en su intento por proporcionar la confianza de los operadores con respecto a sus relaciones comerciales, hay la posibilidad de que se inicie un diálogo entre ellos sobre la base de los actuales acuerdos comerciales entre los operadores móviles en otros mercados. En este sentido, podrían resultar útiles los acuerdos que se podrían utilizar de telón de fondo para la intervención del BTA en asuntos de interconexión móvil a móvil. Por consiguiente, las "redes" que se utilizan para transportar la información relativa a la terminación de fijo a móvil y de móvil a fijo, lo que incluye las redes que podrían ser activadas por los dos operadores, podrían constituir redes básicas en la siguiente fase de intervención del BTA en cuestiones de interconexión.

¹ Véase el miniestudio de caso sobre Dinamarca de la UIT: Beyond Disputes and Towards Consensus Building on TREG (http://www.itu.int/ITU-D/treg/Case_Studies/Index.html), donde se hace referencia a una serie de modelos de costos LRIC/LRAIC internacionales.

(b) Procesos consultivos de la industria

Actualmente, el BTA consulta a los principales actores de Botswana en lo que se refiere a la interconexión y otras cuestiones políticas afines y participa en la formulación de directrices de interconexión, que se han enviado a las empresas para que formulen comentarios. El BTA considera prioritario este proceso de consulta puesto que su objetivo es hacer participar a los actores concernidos antes de que se terminen de elaborar las políticas y reglamentaciones del caso, y se adopten otras medidas que puedan incidir en las actividades de los proveedores de servicios de telecomunicaciones.

ANEXO 1

BTA Ruling No. 1 of 2003, Ruling on Interconnection charges Dispute between Botswana Telecommunications Corporation and Mascom Wireless (PTY) Limited, 26 February 2003.

<http://www.bta.org.bw/pubs/Ruling%20no%203-%20Interconnection%20Disputes%20BTC-Mascom%20%2025%20FEB%202003.pdf>



(Date: 26 February 2003)

BOTSWANA TELECOMMUNICATIONS AUTHORITY (BTA)

BTA RULING NO. 1 OF 2003

**[Pursuant to Section 19 as read with Section 47
of the Telecommunications Act, 1996 (No. 15 of 1996)]**

RULING ON INTERCONNECTION CHARGES DISPUTE

BETWEEN:

BOTSWANA TELECOMMUNICATIONS CORPORATION

AND

MASCOM WIRELESS (PTY) LIMITED

C. M. LEKAUKAU, EXECUTIVE CHAIRMAN

The parties herein, namely, Mascom Wireless (Pty) Limited and Botswana Telecommunications Corporation (hereinafter referred to as Mascom and BTC respectively) entered into and concluded an Interconnection Agreement (hereinafter referred to as the Agreement) on the 13 day of August 1999. The essence of such an Agreement was to facilitate interoperability and access into each other's network, and its concomitant compensation, one being a fixed line network operator (BTC) and the other being a mobile cellular operator (Mascom). The said Agreement provided inter alia for the review and termination of the same. I must point out from the onset that the interconnection charges that were incorporated into the Agreement were set by the Botswana Telecommunications Authority (herein after referred to as BTA and/or the Authority) following a dispute settlement process (see in this regard BTA Ruling No. 1 of 1999). The interconnection charges that the Authority set in 1999 were to be valid for a period of 24 months effective 17 February 1998. The parties however decided to extend the interconnection charges' validity period in terms of the Agreement, which is the subject of these proceedings.

2. In March 2001, the parties commenced negotiations with a view to review the Agreement. A series of meetings were held as evinced by several correspondences between the parties on this subject matter. In the final analysis, the negotiations reached a deadlock. Pursuant to a jointly signed declaration of dispute dated

BTA Ruling No. 1 of 2003

5 July 2002, the parties filed with the Authority, an interconnection dispute for determination, the gravamen thereof being national interconnection charges.

3. It is now apposite for me to spell out the prevailing charges, which Mascom is desirous of having them retained, and the proposed charges, which BTC is advocating for as follows (all in Thebe per minute):

(a) Call Termination on BTC network (not taking into account corresponding volume discounts)

	<u>Current</u>	<u>Proposed by BTC</u>
Peak	24.0	35.0
Off-Peak	19.1	25.0

(b) Call Termination on Mascom network

	<u>Current</u>	<u>Proposed by BTC</u>
Peak	96.0	75.0
Off-Peak	76.9	58.0

4. It is worth mentioning that after the parties declared a dispute, BTC on the 8 July 2002 served a notice of termination of the Agreement on Mascom and thereby gave a 24 months notice pursuant to Article 17.1 of the Agreement. The notice of termination spurred Mascom to raise two points in limine namely, that there was no longer a dispute between the parties as a result of the notice of termination and furthermore that BTC had waived

its rights under the Agreement to seek review of the Agreement by serving the said notice of termination.

5. The two points in limine are crucial in that once I uphold them jointly or severally, they shall render consideration of the variation and/or review of the Agreement unnecessary and that would be the end of the matter. Before I discuss the said points in limine, it is appropriate for me to outline the procedure, which the parties were advised by the Authority to follow and which the parties complied therewith.

6. In brief, BTC and Mascom were advised to submit in a case-stated format their written submissions and arguments (hereinafter referred to as the Initial Submissions), which they did on 4 October 2002. The said written submissions were exchanged between the parties to enable them to know each other's cases. Following the exchange of Initial Submissions, the parties were given an opportunity to respond to each other's submissions in writing (hereinafter referred to as the Reply Submissions). Mascom and BTC submitted their Reply Submission to the BTA on 22 November 2002. The said Reply Submissions were also exchanged between the parties. After the Reply Submissions, the parties were further afforded an opportunity to make oral submissions (hereinafter referred to as the Oral Hearings). The first of these were in the absence of each other (Mascom individual Oral Hearing in the morning of 21 January 2003 and BTC individual Oral Hearing in the morning of 22 January 2003)

BTA Ruling No. 1 of 2003

and then a final one in each others' presence for purposes of making oral rebuttals (the joint Oral Hearing in the afternoon of 23 January 2003).

7. In the morning of the day of the joint Oral Hearing Mascom wrote BTA a letter in which it raised two points touching on the propriety or otherwise of the procedure and the possible violation of the rules of natural justice by the Authority. When amplifying those points during the joint Oral Hearing, Mascom also sought postponement of the joint Oral Hearing so as to be afforded ample time to respond. In reply during the joint Oral Hearing, BTC wanted the matter to proceed as scheduled. In my corresponding ruling read out during the beginning of the joint Oral Hearing, I held that the procedure adopted by the Authority as detailed in the preceding paragraph more than substantially complied with the rules of natural justice. The parties were afforded ample time to prepare their cases. They were also given reasonable time to make Initial and Reply Submissions and also afforded individual and joint Oral Hearings and thus the request for postponement was properly refused.

8. Before addressing the preliminary and substantive issues, I consider it important to underline the importance of this dispute and to place it in context.

9. The setting of fair and efficient interconnection charges is an essential requirement for the creation of a competitive

telecommunications market. Interconnection charges can account for a substantial proportion of operators' expenses and can also constitute a very significant revenue flow, and hence the importance thereof cannot be overstated. I therefore consider that the establishment of a correct and appropriate interconnection charge framework is of fundamental importance in ensuring a consumer friendly and pro-competitive telecommunications market in Botswana.

PRELIMINARY ISSUES

10. I shall now address the preliminary points raised by Mascom seriatim.

Whether there is a dispute

11. In its Submissions and during Oral Hearings Mascom has argued that there is no dispute. According to Mascom, BTC's serving of a notice of termination, altered the factual position with regard to the joint declaration of dispute and therefore required a formal withdrawal of the dispute by the parties. Mascom further argued that by serving the notice of termination, BTC was accepting to abide by the existing terms and conditions of the Agreement until it lapses 24 months after the date of the notice. In short, Mascom is arguing that the serving of notice of termination vitiated the review process that has been initiated three days earlier. During the hearing Mascom was asked by the Authority

whether their case was that once a party serves a notice of termination, it forgoes the right to invoke the other provisions of the Agreement during the notice period. In response, Mascom suggested that in so far as the review was concerned, BTC could not during the notice period seek to continue to review the Agreement.

12. In its Reply Submission and during Oral Hearings BTC argued that the serving of notice did not preclude it from continuing with the review process which it had initiated.

13. A dispute, by its very nature, presupposes the co-existence of a non-frivolous claim and a rejection of the said claim. In other words, there must be both a claim and a rejection in order to constitute a dispute or difference. The issue for determination now is whether there is a dispute between the parties, bearing in mind the notice of termination served on Mascom by BTC. **I hold that the serving of notice of termination by BTC on Mascom did not in any way affect the factual position of the parties herein.** The reason for so holding is that the Agreement still subsists and it will only lapse after 24 months from the date of notice of termination. Not only that, even the dispute still subsists since the provision under which it was declared remains valid notwithstanding the notice of termination. In any case the Agreement expressly recognises this fact. Clause 16.5 thereof provides as follows:

“For the avoidance of doubt, it is hereby agreed that notwithstanding these provisions for review the terms and conditions of this Agreement shall remain in full force and effect during such review until such time as the Parties complete an agreement replacing or amending this Agreement.”

14. Taking into consideration all of the analysis and discussion above, I hold that there is indeed a dispute between the parties.

Whether BTC has waived its rights to seek review or variation of the Agreement.

15. It has been argued by Mascom that, BTC, by serving a notice of termination thereby waived its right to seek a review or variation of the Agreement. Mascom places heavy reliance on Article 16.3 of the Agreement, which states as follows:

“If notwithstanding the parties negotiating in good faith pursuant to clause 16.2 above, at the end of (two months) from the date of the Review Notice the Parties have failed to agree appropriate modifications to this Agreement and the Review Notice has not been withdrawn by the issuing party then the parties will each agree either to:

BTA Ruling No. 1 of 2003

(a) each prepare a written proposal on the dispute and send the other party a copy of such proposal within 7 days of the end of such period; and refer the dispute for resolution in accordance with the procedures specified in clause 21; or (my underlining)

(b) terminate this Agreement.”

16 According to Mascom’s interpretation of the clause cited supra, the parties can only choose one option and cannot elect both. In other words, once a party proceeds by referring a dispute to the BTA for determination, then and only then will such party be precluded from seeking termination of the same Agreement. Mascom is therefore arguing that the aforesaid provisions are mutually exclusive. At this juncture, it is worth mentioning that BTC’s notice of termination was pursuant to Article 17.1 as stated in its letter dated 8 July 2002 and not Article 16.3, which Mascom is relying upon.

17. Article 17.1 of the Agreement, which BTC is relying upon, states as follows:

“This Agreement will remain in force unless and until terminated by either party giving to the other at least 24 months notice in writing to expire at the end of the Initial Period or at the end of any calendar month

thereafter or either Party ceases to hold a licence granted by the Regulatory Authority.”

18. I hold that serving of notice of termination of the Agreement herein did not ipso jure (through law) and ipso facto (through fact) mean that the terms and conditions of the Agreement lapsed at the time the notice was served. The Agreement will only lapse after effluxion of 24 months from the 8 July 2002, the date on which the notice was served. In the interim, all the constituent terms and conditions of the Agreement remain in existence. Once such terms and conditions are in existence; as I hereby hold, the parties’ rights, duties and obligations arising therefrom still subsist. The end result thereof is that any party may invoke any of the provisions of the existing Agreement. The notice of termination did not therefore freeze or stall the operation of the terms of the Agreement.

19. If I were to extend Mascom’s interpretation of the Agreement to its logical conclusion, it would mean that once a party has served a 24 months notice as provided for in the Agreement, then there can never be any exercise of any of the terms of the Agreement for instance, review of the terms of Agreement whatsoever. A party will be precluded and estopped from invoking any of the terms of the Agreement and this could not have been the intention of the contracting parties. Serious and far reaching economic ramifications within the telecommunications sector may arise if such an important Agreement is rendered immune from,

not only review, but also the exercise of any rights emanating from the Agreement for a period of 24 months, which is the notice period.

20. The telecommunications market is an ever-evolving industry and having to wait for a period of 24 months (notice period) without invoking any of the terms of such a very vital agreement may have adverse consequences within the telecommunications industry. I would therefore adopt a conjunctive interpretation of Article 16.3 for purposes of giving effect to the intention of the parties and to remove any absurdity that may arise therefrom and to further ameliorate any adverse repercussions (as stated above) that may arise once I find solace in a disjunctive interpretation. The use of the word 'or' in the said Article is therefore construed conjunctively as opposed to disjunctively, bearing in mind that in ordinary usage "or" is disjunctive whereas under certain instances like in the present case, it is construed conjunctively. In this connection see Uddin v. Associated Portland Cement Manufactures Ltd [1965] 2 QB 582. On the basis of this progressive reasoning, I am inclined to conclude that BTC did not waive its right to seek a review of the said Agreement by serving a Notice of Termination of the Agreement on Mascom.

21. Even if I were to rule that BTC can only and distinctively seek either a review or termination of the Agreement, that is to say, to adopt a disjunctive interpretation, the end result shall be the same. If it is review on its own, that does not present any

difficulty at all as the Authority is now asked to review the said Agreement by BTC. On the other hand, if it is termination as preceded by the served notice, still a review of the Agreement shall be in order for the simple reason that notice of termination did not in any way extinguish any of the terms of the Agreement, for instance, review of the said Agreement.

22. If I were to invoke, mero motu, a common sense approach that if two or more acts by the same individual are repugnant or inconsistent, the last one must prevail, still, such an approach does not advance the Mascom case any further. In this case, BTC asked initially for a review of the Agreement and three days later served a notice of termination of the said Agreement. If I uphold that notice of termination must prevail, the aforestated conclusion is also reached, which is: notice of termination does not ipso facto and ipso jure freeze the operation of the terms of the Agreement and BTC will be justifiably entitled to invoke any of the provisions of the Agreement.

23. Assuming I were to agree with Mascom that the provisions of clause 16.3 are mutually exclusive and should be interpreted disjunctively, I still cannot agree that BTC could be said to have waived its right to continue with the review process it initiated prior to the serving of notice of termination. In that case my position would be that BTC did exercise its option, in terms of clause 16.3, on 5 July 2002 by opting for a review process and that by so doing it may have precluded itself from opting for a termination process.

24. **I accordingly hold that BTC has not waived its right to seek a review of the Agreement.**

25. Having adequately addressed the preliminary points in limine raised by Mascom I shall now proceed to briefly consider instances under which a review of the Agreement may be possible.

26. In terms of the Agreement, certain procedural and substantive requirements have to be satisfied in order to initiate the review process. The relevant clause thereof is clause 16, dealing with the giving of the review notice, and review when there is a material change of circumstances. In the circumstance the said conditions precedent have been satisfied by BTC. In any event, Mascom is not arguing that there was non compliance with either procedural and or substantive requirements of the said article dealing with review. **On the basis of the afore mentioned justification I hold that BTC is entitled to seek a review of the Agreement.**

LEGAL BASIS FOR THE DETERMINATION OF INTERCONNECTION CHARGES

27. In reviewing the appropriate legal basis for the determination of interconnection charges, I shall place heavy reliance on the Act, the licences of the two parties herein, the Agreement and the

Telecommunications Policy of Botswana (1995), (hereinafter referred to as the “Policy”).

The Telecommunications Act, 1996 (No. 15 of 1996)

28. The relevant provision thereof is section 47 of the Act, which inter alia, provides that in the event of an interconnection dispute the Authority shall have the power to decide on the matter and set down such terms and conditions for interconnection as seem fair and reasonable to it. The fundamental indicia thereof is what seems to be a “fair and reasonable” interconnection charge to the Authority in each case.

29. What amounts to “fair and reasonable” charge as provided for in section 47 depends upon a host of several considerations. Such considerations may include significant market power or otherwise of the operators, the possibility of revenue sharing by concerned operators, level of competition, benchmarking, promotion of universal access, interconnect access charge, consumer interests; subscriber base, transparency, cost orientation; reasonable rate of return on investment, non discrimination, market structure and the Policy. It is not intended that the above stated list is exhaustive, nor that all the factors listed above would necessarily be relevant in any particular dispute. As stated above, it will be upon the Authority to determine what is fair and reasonable in the circumstances. In addition, the Authority is mindful of its mandate under section 17 of the Act,

which is the promotion and development of efficient telecommunications services in Botswana.

Telecommunications Policy for Botswana

30. The Policy recognises interconnection as forming part of the liberalisation process and development of competition in the telecommunications sector. It is prudent for me to refer to the relevant exposition in the Policy where a justification for a mandatory and mutual interconnection obligation is stated at paragraph 8.6 page 18 as follows:

Justification. In order to rationalise the use of present network and to avoid duplication of infrastructure all new and present networks should be interconnected for national economic benefit as well as for the benefit of the consumer.”

31. The Policy further advocates for a fair and reasonable pricing. In this connection, see paragraph 8.9 at page 20 where it is stated as follows:

“Prices should be deemed fair and reasonable if they reflect recovery of the investment in the medium to long term perspective.”

32. An interpretation of the afore-cited Policy guideline reflects or advocates for a fair and reasonable pricing criteria, taking into account all the goals enshrined in the Policy, such as recovery of the investment, promotion of universal access, liberalisation, effective competition and the interests of consumers.

BTC and Mascom Licences

33. In respect of BTC's licence the relevant clause is 5.1, which embraces the principle of cost orientation for regulated tariffs, which includes interconnection charges. See also clause 7.2.3 of the said licence, which obliges the BTC to ensure, that interconnect elements charged for are sufficiently unbundled and that they are based on underlying costs. With respect to Mascom's licence, the relevant clause is clause 3 dealing with leased lines and fixed links. Sub clause 3.1.3 thereof provides that for purposes of establishing interconnection of its public land mobile network elements and the public switched telephone network of BTC, Mascom shall use leased lines. Furthermore, sub-clause 3.4 states that in the event of a dispute relating to the reasonableness of any leased line service or charge, the parties shall refer the dispute to the Authority for determination.

34. When reconciling and juxtaposing the two licences of the parties with the Act, I have no doubt in my mind that Mascom licence is consistent with the Act in that it requires reasonable interconnection charges as contained in clause 3 of the licence.

Concerning BTC's licence, I have no hesitation in concluding that it is equally consistent with the Act insofar as it requires cost based charges, which are an integral component or subset of fair and reasonable charges. In other words, cost based charges and other considerations will shed light on what is fair and reasonable. A licence by its very nature sets out the scope, terms and conditions that the concerned operator should comply with. It may be equated to a contract between the operator and the Authority under which the operator enjoys rights, duties and obligations. A violation of those rights, duties and obligations may attract or be visited by a form of sanction imposed thereon by the Authority. It therefore follows that the BTC and Mascom are duty bound to comply with the terms and obligations imposed by their licences. **My finding is that both the BTC and Mascom licences are consistent with the requirements of section 47 of the Act.**

Interconnection Agreement

35. Appendix C of the Agreement between the parties herein recognises cost-based charges. At paragraph 1 thereof it is stated as follows:

“The parties recognise that:

- It is the intention that interconnection charges will be based on costs (my emphasis), although it is stated in the cellular tender document that the costing figures may not be available in the short term and another method should be used;

- The charges should:
 - (a) compensate the provider fairly for the services it provides and produced (sic) a reasonable return on the assets and resources involved;
 - (b) encourage increased networks usage and in the long run reduce costs of service to the customers;
 - (c) not be prohibitively high to inhibit the growth of cellular services”.

36. The Agreement also recognises cost based charges. Not only that, it also states under (a) above that the charges should compensate the operator fairly, and in my view this encompasses fairness as required in section 47. Under (b) above increased network usage as well as reduction of costs of services to customers is encouraged when setting interconnection charges and lastly (c) advocates for charges that are not prohibitively high to the extent of inhibiting cellular growth. Interpreting all these three guidelines jointly and cumulatively, I make a finding that they require fair and reasonable interconnection charges. The said charges should satisfy what I may term the “triad of interconnection”, that is to say, the said charges should be fair to the operators, fair to the end-users or customers and lastly satisfy the general mandate of the Authority as provided for in the organic statute and the Policy. In the final analysis, the said three

guidelines in the Agreement are consistent with section 47 of the Act, which requires fair and reasonable interconnection charges.

37. Taking into account all of the analysis and discussion above, I hold that the legal principle for determining interconnection charges in Botswana is the “fair and reasonable” test. It is therefore entirely upon the Authority to determine whether in the setting of interconnection charges, cost orientation and or efficiency should be invoked in addition to or forming part of any other criteria which the BTA may deem appropriate and justifiable to satisfy the fundamental or critical epithet of fair and reasonable pricing. Interconnection charges may, in appropriate circumstances be deemed to be fair and reasonable if they approximate costs or are based on efficiency criteria.

PRICING OF INTERCONNECTION

38. I have identified the following three principal approaches to the pricing of interconnection around the world: revenue sharing arrangements; sender keeps all arrangements (i.e. bill and keep); and interconnection usage charges (hereinafter referred to as IUC). However, sender keeps all arrangements are not relevant to this dispute and hence I shall only discuss revenue sharing arrangements and IUCs.

Revenue Sharing Arrangements

39. Revenue sharing arrangements are relatively simple to implement. Historically, they were the result of negotiations between the corresponding non-competing operators. Hence, revenue sharing arrangements are generally not cost-oriented and therefore they are generally considered to be economically inefficient. Therefore, the actual revenue share amounts tended to reflect the bargaining power of the respective operators. As such, operators often tended to focus on the relative ratio of revenues being assigned to each operator, rather than the absolute level of the revenue amounts. Once competition is introduced, as it is in our jurisdiction, the revenue sharing arrangements becomes impractical and as well exhibits a number of policy disadvantages.

40. From a practical perspective, revenue sharing arrangements introduce a high degree of unpredictability in the revenue flows of terminating operators, and recurrence of disputes. If an entrant wants to lower one of its consumer prices that has traditionally been the subject of a revenue sharing arrangement, the result will be lower revenue share amounts not just for that operator but for all the operators involved in carrying the call. However, these interconnecting operators have no desire to accept lower payments in order to support the competitive strategy of the other operator.

41 Revenue sharing arrangements have a number of additional disadvantages. First, as may be apparent from the discussion above, revenue sharing arrangements are not conducive to vibrant consumer tariff competition. Second, revenue sharing arrangements may also be discriminatory. For example, in competitive markets, different originating operators may set different consumer tariffs for a call to the same terminating network. Hence, the terminating operator may be paid more or less by different originating operators for exactly the same service (termination of traffic), depending on the respective consumer tariffs of the originating operators.

42. My Ruling (No. 1 of 1999), which established the current interconnection framework in Botswana, was generally reflective of a revenue sharing arrangement. At that time, with the recent introduction of mobile services by Mascom and Vista, and the continuing de facto BTC monopoly on fixed services and in order to promote stability and certainty in the sector, it was necessary to set termination and origination charges for BTC only. Based on the fixed consumer tariffs, these BTC termination and origination charges resulted in fixed corresponding revenue share amounts for Mascom.

Interconnection Usage Charges

43. IUCs are the charges payable between interconnecting operators for the actual use of each others' network to originate, transit or terminate a call. Hence, there may be up to three types of IUCs: origination, transit and termination. I will now focus on IUC termination charges, given that IUC transit charges are not applicable to this dispute and that IUC origination charges are generally used and are appropriate for situations where the terminating operator sets the corresponding consumer tariff.

44. The originating operator would, from the consumer tariff that it determines and collects, pay a set amount to the corresponding terminating operator. The amounts paid would generally be independent of the consumer tariff. The residual amount, that is the amount remaining from the consumer tariff after termination charges, is the amount retained by the originating operator (hereinafter referred to as the retention amount).

45. I am of the view that IUCs are currently the best practice approach for the pricing of interconnection in markets where competition has been introduced, such as in Botswana. This is for a number of practical and policy reasons.

46. From a practical perspective, IUCs have been proven around the world as the most sustainable approach to interconnection pricing in competitive multi-operator environments. From a policy perspective, I find that IUCs have number of advantages. First, IUCs are more conducive to vibrant competition in the consumer tariffs. With IUCs, the originating operator has a more direct control on its retention amount, given that it has to pay the terminating operators the corresponding (fixed) charges. Second, IUCs tend to be most equitable under competitive scenarios. In these instances, a terminating operator will charge all operators who terminate their traffic on its network the same non-discriminatory (termination) interconnection charge. Third, IUCs are generally more compatible with the principle of cost-orientation. Because IUC termination charges are independent of consumer tariffs, they may be set at efficient cost-oriented levels.

47. Having addressed the advantages and disadvantages associated with the interconnection pricing methods, I shall now dwell on the submissions of the parties. In its Initial Submission, BTC did not address the pricing of interconnection issue directly. However, I note that BTC appears to include elements of IUCs and of revenue sharing arrangements. The BTC Initial Submission focused on the presentation of the estimates of BTC's origination and termination charges of calls to/from the mobile network. This has elements of IUCs. BTC, however, appears to propose that the changes in its origination and termination charges be undertaken

within the context of a fixed consumer tariff. In effect, therefore, such a proposed increase would appear to result in a reduction in the corresponding shares received and retained by Mascom, respectively. This is an element of a revenue sharing arrangement, with a proposed increase in the share for BTC.

48. In its Reply Submission, BTC did not address the interconnection pricing issue directly. It did, however, address the issue of the relative ratio of fixed to mobile termination charges in neighbouring African countries, in response to the specific benchmarking approach proposed by Mascom in its Initial Submission. As I pointed out earlier, most of the discussions associated with the relative ratio of mobile to fixed interconnection charges are more reflective of revenue sharing arrangements rather than the IUCs.

49. In the Oral Hearings, however, BTC appeared to recognise the relative advantages of the IUC termination charges over a revenue sharing arrangement. In particular, BTC noted the benefits of de-linking (wholesale) interconnection charges from the (retail) consumer tariffs.

50. In its Initial Submission, Mascom did not address the pricing of interconnection issue directly. However, based on my analysis, the Mascom Initial Submission, which places emphasis on the relative ratio of fixed to mobile charges appears to reflect a revenue sharing arrangement.

51. In the Oral Hearings, Mascom, when presented with a revenue sharing versus IUC arrangements options by the Authority, appeared to recognise the relative advantages of the latter over the former.

52. My review of the international practice and experience of interconnection pricing suggests that as sector reforms have taken place around the world, including the introduction of competition, an increasing number of regulators have discarded revenue sharing arrangements in favour of IUCs.

53. I note that while in their Initial and Reply Submissions BTC and Mascom do not directly address the pricing of interconnection issue, once the matter was presented as a clear choice by the Authority during the Oral Hearings, both parties appeared to recognise the relative advantages of the IUC termination charges over revenue sharing arrangements. I further note that in practice, the parties have already adopted a IUC termination charge regime.

54. For practical and policy reasons discussed above, I consider that an IUC termination charge regime is the most desirable approach for the pricing of interconnection in Botswana at this time. I therefore direct that an IUC termination charge approach for interconnection pricing between BTC and Mascom be implemented.

SETTING OF INTERCONNECTION CHARGES

55. In considering the substantive issues under dispute I have carefully reviewed the Initial and Reply Submissions and the arguments made during the Oral Hearings. In order to better understand the dynamics of the dispute, I have undertaken a thorough analysis and assessment of data provided by both parties. I have also reviewed and assessed what I consider appropriate and efficient interconnection trends and practices in other countries, especially with respect to the current best practice of using efficient benchmarks.

56. Given that I have directed BTC and Mascom to implement an IUC termination charge approach to the pricing of interconnection, the next fundamental step is to examine the appropriate methodology for the determination of termination charges for BTC and Mascom. I have identified costing methodologies and benchmarking approaches as the two broad principal approaches to the setting of interconnection and I proceed to examine the advantages and disadvantages of these two approaches.

Costing Methodologies

57. The cost approaches can be identified into two principal criteria as follows: (1) historical or backward-looking approach; and (2) the forward-looking approach.

Backward-Looking Approach

58. This approach involves the compilation of accounting and other historical data to model the actual network in place and to price it based on what was paid for each network element. The best-known variation of this approach is fully distributed cost (“FDC”) or “fully allocated costs”. Due to general lack of detailed analytical accounting data, however, FDC allocates the relevant investment across broad service categories.

59. The main criticism of this approach is conceptual. In comparison to the forward-looking approach, the backward-looking approach does not adequately reflect the dynamics of competitive markets. Hence, the costs that are calculated by this approach may not be economically efficient.

60. There are also a number of practical criticisms to this approach. One practical criticism of the backward-looking approach that I find particularly pertinent is that historical costs may reflect investment, operational or technological inefficiencies of the operator. These inefficiencies have often been found to be relatively large, especially in state-owned monopoly operators. Further, historical costs do not reflect changes in technology or management methods – such technology and methods, if utilised today, could imply a much lower cost. Another possible form of inefficiency is that often the operator may have over-invested in

the past so that it currently has spare capacity. Hence, with respect to the setting of interconnection charges, it is argued that historically inefficient operators may be “passing on their inefficiencies” as a result of the adoption of this approach. Additionally, such inefficiencies could be passed to the consumer in the form of higher consumer tariffs.

61. In combination, these criticisms have resulted in a significant shift. While still being widely used for management purposes, regulators are increasingly replacing backward-looking approaches with forward-looking costing methodologies and/or benchmark approaches.

Forward-Looking Approach

62. This approach is generally preferred by most regulators because it reflects better the dynamics of competitive markets. Competitive operators are compelled to look forward to set prices to compete, rather than to look back at prices based on their historical investments. Accordingly, the costs that are calculated by this approach, including, in particular, IUC termination costs, are generally considered to be economically efficient because they most closely approximate the prices that would otherwise be present in effectively competitive markets. Therefore I am inclined, to hold the view that cost orientation, in as much as it leads to charges that approximate costs, is an appropriate principle to apply in the current circumstances.

63. The forward-looking approach uses current and projected future prices and attempts to calculate an efficient network to provide the services in question. The most common and generally accepted forward-looking approach is long-run incremental costs (“LRIC”). LRIC are the incremental costs that would arise in the long run with a defined increment to demand.

64. LRIC may be implemented in a number of ways, including the European Commission’s long run average incremental costs (“LRAIC”) and the United States of America’s Federal Communications Commission’s total element long run incremental costs (“TELRIC”). These variations are based on the LRIC standard but differ in terms of the size of the increment and the treatment of joint and common costs. All of these variations include “mark-ups” to cover a portion of joint and common costs.

Benchmarking

65. Benchmarking is often used by regulators as a transitional or complementary approach. There are different benchmarking methodologies. In particular, an efficient benchmarking approach would use actual or projected efficient prices in other countries. Efficient prices would result from effective competition or where the regulator has established prices based on an acceptable costing methodology. For instance, the European Union (“EU”) used a variant of efficient benchmarking to ensure the progressive

reduction of fixed interconnection charges in the transition period between the general introduction of competition in 1998 and the implementation of LRAIC and other costing methodologies by national regulators in the EU. Specifically, the EU's "best current practice" approach avoided many of the common pitfalls of benchmarking. For instance, it did not select an average or the mid-range of existing charges. Given that at the beginning of this period there was no effective competition in most EU countries or that most countries had not implemented efficient costing methodologies, taking an average or a mid-range of all existing charges would likely have resulted in inefficient benchmark termination charges not oriented to costs.

66. The EU's "best current practice" approach may be summarized as follows. For each level of interconnection, it reviewed the standardized interconnection prices for its 15 member countries. The EU has defined three levels of interconnection charges for fixed termination depending on where in the network hierarchy the call is terminated and the distance the call has to be carried: "Local" represents interconnection at the local exchange; "Single Transit" represents interconnection at the "Metropolitan" level, including the use of one tandem switch; "Double Transit" or "National" allows access to all customers on the network and includes tandem links of at least 200 km. The EU then ranked the standardized prices for each level from the lowest to highest. For each level, the EU based its "best current practice" range on the three lowest interconnection charges in its member

countries. Hence, the lowest interconnection price constituted the lower end of the “current best practice” range while the third lowest interconnection price constituted the upper end.

67. In its Initial Submission, BTC proposed using the backward-looking costing methodology it had earlier developed for the estimation of its own origination and termination charges. Based on these cost calculations BTC argues that its origination and termination charges under the current arrangements are too low and do not allow it to fulfill its obligation of cost-orientation. In its Reply Submission, BTC insisted that its cost-based approach was superior to the benchmark approach proposed by Mascom in its Initial Submission.

68. During the Oral Hearings, BTC continued to put forward its cost-based approach to support its proposed interconnection charges. It maintained its position that the benchmark comparisons proposed by Mascom were inferior in principle to the implementation of a costing methodology.

69. On the other hand, Mascom in its Initial Submission provides an extensive international comparison of fixed and mobile interconnection charges and the relative ratio of fixed to mobile termination charges. After reviewing world-wide and continental averages, Mascom also provides data for a number of developing countries as well as for the 15 member countries of the EU. Mascom argues that these absolute and relative comparisons

support the status quo arrangement in Botswana. Commenting on the EU experience Mascom notes that some regulators have been significantly reducing mobile termination charges. However, Mascom argues that LRAIC-type modelling, especially for mobile services, is generally at its infancy even in the EU.

70. In the Oral Hearings, Mascom continued to express its preference for a benchmark approach to the setting of interconnection charges. Mascom further elaborated on its position with respect to cost methodologies. It noted that it was not opposed in principle to the development and implementation of an approved costing methodology. What Mascom rejected was the imposition of any particular type of methodology by BTC without BTA approval. It argued that the BTA had not made a final decision on an approved costing methodology and hence any specific proposal by BTC was in principle not acceptable to Mascom. At this point, I wish to acknowledge that the Authority has not yet developed principles to be applied by operators in the setting of tariffs as provided for under section 18(1) of the Act and that shall be done in due course. The Authority is nonetheless duty bound to make a determination herein on the basis of what it considers fair and reasonable.

71. Based on my review of the Submissions and the Oral Hearings and my extensive analysis and assessment of approaches used by regulators around the world to set fixed and mobile interconnection charges, and taking into consideration the

policy and practical advantages and disadvantages of each approach as summarized above, I consider that the current best practice approach for the setting of interconnection charges is a forward-looking LRIC methodology, as it tends to result in the calculation of economically efficient cost oriented charges. I recognise, however that due to the time required to develop and implement such a methodology, it would not be feasible or desirable to implement a forward looking LRIC approach within the context of the current dispute. In the long run, the Authority supports the development and implementation of a forward-looking costing methodology for the determination of interconnection charges.

72. Taking into account the impracticality of implementing a forward-looking LRIC methodology, I have in the interim, considered a number of options with respect to the setting of interconnection charges. Given my findings above, in assessing these options I will place special emphasis on whether their implementation is likely to result in efficient termination charges for BTC and Mascom.

73. One option I considered was to set the BTC interconnection charges based on the backward-looking costing methodology proposed and implemented by BTC. I am of the view that the backward-looking costing methodology is conceptually inferior to the preferred forward-looking costing methodology, in that it does not accurately reflect the workings of competitive markets.

74 If I were to assume that the costing methodology proposed by BTC was acceptable to the Authority, its adoption in this dispute would raise the question of the appropriate methodology to be applied by the BTA to calculate the termination charges for Mascom. Under this scenario, the principle of symmetrical regulatory treatment and fairness would suggest that the same backward-looking cost methodology would also be applied to Mascom. However, due to the time required to actually implement such a methodology for Mascom, this option does not appear to be feasible or desirable within the context of this dispute. Hence, for conceptual and practical reasons, I do not consider this option to be implementable. From a practical perspective, therefore, the most appropriate remaining option appears to be an efficient benchmarking approach.

75. Based on my analysis and discussion above, I hold that an efficient benchmarking methodology is the most likely to result in efficient benchmark termination charges for BTC and Mascom.

76. There are two principle variables in implementing an efficient benchmarking methodology. One is the countries to be included in the benchmark sample. The other is the selection criteria of the actual benchmark level or range within that sample. I shall now discuss these in turn.

Sample of Countries

77. In their Submissions, BTC and Mascom presented a number of different samples. I found the world-wide or continental samples presented by Mascom as generally unhelpful, given that the methodologies used to calculate the interconnection charges are not known. Further, many of these samples may include countries with Receiving Party Pays (RPP) regimes, which would make the sample inappropriate given the Calling Party Pays (CPP) regime currently used in Botswana.

78. Mascom presented some samples of Southern African countries. Indeed, I consider that, in principle, the review of African, Southern African or SADC member countries samples could be important. However, I was not given any information with respect to whether any African country has implemented LRIC-type costing methodologies for the calculation of fixed and mobile termination charges. Further, there does not appear to be a significant number of countries in Africa where sufficient competition would result in efficient termination charges. In summary, there is nothing to suggest that in Africa there exists a useful number of countries from which to construct a sample that would incorporate either efficient charges based on appropriate costing methodologies or efficient charges that result from effective competition. In effect, if I were to choose a sample of

African countries, I would be concerned that much of the sample would include interconnection charges that are the result of negotiations, rather than cost-orientation. Hence, I consider that a comparison with these countries would not promote the efficiency objective; rather, such a comparison would reflect the relative negotiating power of the respective operators in each of the countries. In spite of the intuitive appeal of selecting a sample of African countries, I consider that African comparisons are not an appropriate sample.

79. Mascom also placed some emphasis on the 15 member countries of the EU. I have researched the experience of the EU countries with respect to fixed and mobile interconnection. Based on this review, I consider that the EU countries represent a sample that is particularly well-suited to meet the BTA objective for the setting of efficient termination charges for BTC and Mascom, for a number of reasons, some of which I discuss below.

80. First, EU countries apply a CPP or CPP-like arrangement for fixed-mobile interconnection. This is consistent with the situation in Botswana. Second, as part of EU governance arrangements, all EU countries are required to implement and comply with European Commission Directives, including with respect to interconnection and interconnection costing methodologies. This results in a relatively homogenous regulatory framework in each country that facilitates intra and extra-EU comparisons. Third, the EU has developed and implemented for more than four years a

well-defined and highly-regarded benchmarking methodology for interconnection charges. This methodology includes the criteria for ensuring adequate comparability to take into account the level of physical interconnection (local, metropolitan and national), the time-of-day that the call is undertaken and the structure of interconnection charges. The fact that the EU benchmarking methodology has been tried and tested ensures that, if I were to consider it, it would be a reasonable alternative. Fourth, many of the national regulatory authorities have developed and actually implemented costing methodologies, including LRAIC methodologies for interconnection charges.

81. For fixed termination, most national regulators in the EU have implemented costing methodologies to guide interconnection charge setting. Of this group, six have implemented forward-looking LRAIC methodologies and an additional number are in the process of developing LRAIC to be implemented in the near future, replacing historical costing methodologies. Hence, I consider that the EU provides a good sample of countries that have reached or are in the process of reaching efficient cost-oriented termination charges for fixed networks, based on the implementation of costing methodologies. In fact, in recognition of this, in 2002 the EU decided to discontinue its “current best practice” benchmarking because of the progressive reduction of interconnection charges to the “current best practice” recommendations.

82. With respect to mobile, there is an increasing trend amongst regulators in favour of the regulation of mobile termination charges. In the EU, in particular, the UK and Austria, have developed and implemented LRIC-based costing methodologies. Other EU regulators have used other approaches, including efficient benchmarking, to mandate significant decreases in mobile termination charges, including in Sweden, France and Belgium.

83. I recognise that the economic and telecommunications development conditions in the EU are different from those of Botswana. One possible risk in this regard is that the selection of the EU sample may result in benchmark termination charges for BTC and Mascom that are below their efficient forward-looking costs. I have fully considered this possibility and have taken the necessary precautions, including the implementation of a transition period, to mitigate this risk.

84. Based on the analysis and discussion above, I hold that the 15 member countries of the EU provide the most appropriate efficient benchmarking sample to be used in the setting of efficient termination charges for BTC and Mascom.

Benchmarking Selection Criteria

85. For fixed termination, I am confident that most of the EU countries have reached or are in the process of reaching efficient cost-oriented termination charges. Based on my review of the data provided by BTC as part of this process, I consider that the EU-defined “National”-level interconnection is the most comparable to the situation in Botswana. **Hence, for fixed termination, I hold that an average or mid-range of all the 15 EU countries for “National” interconnection constitutes an efficient benchmarking methodology and hence a fair and reasonable basis on which to determine the efficient benchmark termination charge for BTC.**

86. For mobile termination, I am not confident that most of the EU countries have reached or are in the process of reaching efficient cost-oriented termination charges. Hence, for mobile termination, I do not consider an average or a mid-range of all the 15 EU countries to constitute an efficient benchmarking methodology. **Instead, I hold that an average or mid-range of the “current best practice” range, as defined by the EU, constitutes an efficient benchmarking methodology and hence a fair and reasonable basis on which to determine the efficient benchmark termination charge for Mascom.**

DETERMINATION OF BTC AND MASCOM TERMINATION CHARGES AND IMPLEMENTATION ISSUES

87. I have already decided on a new framework for the pricing of interconnection (IUC termination charge approach), which is independent of consumer tariffs and on the methodology for the setting of these termination charges (based on efficient EU benchmarking). I now proceed to determine the actual efficient benchmark termination charges for BTC and Mascom. I do not, however, intend to enforce immediately the resultant efficient termination charges. I consider below a transition period and volume discounts.

Volume Discounts

88. In order to facilitate the development of the mobile sector, in my ruling of 1999, I ordered mandatory volume discounts on the revenue amount for the termination of traffic on the then largest operator, BTC. I did not at that time order volume discounts to the termination of traffic on Mascom. In 2003, however, Mascom is significantly larger than BTC, at least in terms of subscribers.

89. Based on the data submitted by the operators as part of this process, I have confirmed a significant traffic imbalance between BTC and Mascom. The most recent data available to the Authority shows that BTC terminates 2.5 to 3.0 times as much traffic on the Mascom network than does Mascom terminate traffic on the BTC

network. Given market developments and the continuing traffic imbalance between BTC and Mascom, I am of the view that the application of mandatory volume discounts only for termination on the BTC network is no longer appropriate.

90. Based on the analysis and discussion above, I direct that, starting on the effective date of this ruling, the mandatory volume discounts on the termination of Mascom-originated calls on the BTC network be discontinued.

Transitional Arrangements

91. The efficient benchmark termination charges I have determined for BTC and Mascom are significantly below the respective current termination charges.

92. In these circumstances, I consider that a transition period is necessary as a risk-mitigating measure. Further, I recognize that a transition period is appropriate to allow both BTC and Mascom to reasonably accommodate the efficient benchmark interconnection charges. I also consider that there is a trade-off between regulatory policy objectives and financial imperatives in determining the optimal time period for the operators to reach the efficient termination levels. The regulatory objectives require a short implementation timeframe while the financial imperatives suggest a longer implementation timeframe.

93. Based on the analysis and discussion above, I have decided on the applicable mandatory termination charges for BTC fixed termination and Mascom mobile termination. These termination charges are presented in the table below, which includes their implementation schedule. The termination charges in the table are in nominal (current) terms and should be treated as ceilings (i.e. the respective terminating operator may choose to set lower termination charges).

BTC fixed termination charges and Mascom mobile termination charges			
Operator	Time-of-Day Period	Effective date of Ruling to 29 February 2004	From 1 March 2004
BTC	Peak	15.0	11.0
	Off-Peak	12.0	8.8
Mascom	Peak	85.0	75.0
	Off-Peak	68.0	60.0

Note: Peak and off-peak hours shall have the same meaning as defined in the Agreement.

CONCLUSIONS

94. Under the IUC termination approach, the originating operator has the right to set and collect the corresponding consumer tariff and the responsibility to pay a fixed termination charge to the terminating operator. With this in mind and taking into account the staged reductions in the underlying termination charges, I expect that the parties will pass on to the end consumers the benefits of the reduced termination charges in the form of lower consumer tariffs.

95. Before I conclude I wish to address specifically the prayer raised by BTC under which BTC is requesting that Mascom be ordered to pay interest at the rate of prime plus two percent on the losses amounting to thirty million Pula suffered as a result of the delay in effecting the proposed charges as purportedly agreed by Vista (Pty) Ltd. In my view, there is no merit in this prayer. The alleged delay on the part of Mascom was justified in the circumstances. Mascom was legitimately safeguarding its interests through proper negotiations, which were also done in good faith. Furthermore, Vista is not a party to the present proceedings let alone to the current Agreement between the parties herein. **There is no basis upon which Mascom may be ordered to pay costs, which may have been suffered by BTC in its dealings with a non-party. The said prayer is accordingly refused.**

BTA Ruling No. 1 of 2003

96. **This ruling shall remain valid and binding on both parties for a period of 24 months effective from the date of the ruling. In the event that the parties herein reach an agreement during the subsistence of this ruling, the Authority reserves the right to uphold and confirm such agreement in so far as the essence of such agreement does not substantially breach the fundamental framework or tenet as espoused by this ruling.**

97. This ruling takes effect from the date hereof. Any party aggrieved by this decision may appeal to the High Court in terms of section 56 of the Act.

Delivered at Gaborone on this **Twenty Sixth** day of February 2003.

C. M. Lekaukau
Executive Chairman

ANEXO 2

EU Public Network Interconnection and Interconnection Charges and Prices for Unbundled Local Loop, from “Technical Annex of the 8th Report on the Implementation of the Telecommunications Regulatory Package” 3.12.2002.

http://europa.eu.int/information_society/topics/telecoms/implementation/annual_report/8threport/finalreport/Annex%201%20-%20Corrigendum%20March%202003.pdf



COMMISSION OF THE EUROPEAN COMMUNITIES

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COMMISSION STAFF WORKING PAPER

Technical Annexes of the

Eighth Report on the Implementation of the Telecommunications Regulatory Package

CORRIGENDUM

{COM(2002)695 final}

ANNEX 1

MARKET OVERVIEW

TABLE OF CONTENTS

1	PLAYERS IN THE FIXED MARKET	7
1.1.	LICENSING REGIMES IN THE MEMBER STATES	8
1.2.	NUMBER OF FIXED TELECOMMUNICATIONS OPERATORS	10
1.3.	INCUMBENTS MARKET SHARE ON FIXED TELEPHONY MARKET	17
1.4.	SHARE OF PUBLIC OWNERSHIP IN INCUMBENT OPERATORS	20
1.5.	ADMINISTRATIVE AND NUMBERING FEES FOR THE PROVISION OF PUBLIC VOICE TELEPHONY AND PUBLIC NETWORK SERVICES	21
2	CONSUMER'S CHOICE OF FIXED OPERATORS.....	27
2.1.	PERCENTAGE OF SUBSCRIBERS WITH CHOICE OF OPERATORS FOR FIXED CALLS.....	27
2.2.	PERCENTAGE OF SUBSCRIBERS ACTUALLY USING AN ALTERNATIVE PROVIDER OTHER THAN THE INCUMBENT	29
2.3.	FACILITIES USED BY NEW ENTRANTS TO PROVIDE VOICE TELEPHONY	30
3	PUBLIC NETWORK INTERCONNECTION AND INTERCONNECTION CHARGES.....	33
3.1.	FIXED-TO-FIXED INTERCONNECTION CHARGES	33
3.2.	LEASED LINE INTERCONNECTION CHARGES	35
3.3.	FIXED-TO-MOBILE INTERCONNECTION CHARGES	40
4	MOBILE MARKET.....	45
4.1.	MOBILE PENETRATION.....	45
4.2.	PLAYERS IN THE MOBILE MARKET	47
4.3.	OPERATORS' MARKET SHARES	49
4.4.	MOBILE BASKET	51
5	LOCAL ACCESS AND PRICING	55
5.1.	BROADBAND ACCESS	55
5.2.	PRICES FOR UNBUNDLED LOCAL LOOP.....	62
6	INTERNET SERVICES	67
6.1.	INTERNET MARKET DATA	67
6.2.	INTERNET ACCESS PRICING	69
7	PUBLIC VOICE TELEPHONY TARIFFS.....	71
7.1.	CHARGING SYSTEM.....	72
7.2.	MONTHLY RENTAL CHARGED BY THE INCUMBENT OPERATORS.....	74
7.3.	AVERAGE MONTHLY EXPENDITURE (COMPOSITE CALL BASKET)	76
7.4.	FIXED NATIONAL CALLS	78
7.5.	TREND OF THE BASKET FOR FIXED NATIONAL CALLS (NATIONAL BASKET).....	81
7.6.	ALTERNATIVE NATIONAL OPERATORS	82
7.7.	PRICE OF AN AVERAGE FIXED INTERNATIONAL CALL (INTERNATIONAL CALL BASKET)	84
7.8.	PRICE OF CALLS TO EU, JAPAN, USA	86
7.9.	ALTERNATIVE INTERNATIONAL OPERATORS	88
8	LEASED LINES RETAIL TARIFFS.....	91
8.1.	INCUMBENTS' NATIONAL LEASED LINES.....	91
8.2.	NATIONAL LEASED LINES PRICE TRENDS (1 AUGUST 1998 - 1 AUGUST 2002).....	97
8.3.	INTERNATIONAL LEASED LINES PRICES	98
8.4.	INTERNATIONAL LEASED LINES PRICE TRENDS (1 AUGUST 1998 - 1 AUGUST 2002).....	102
9	EXCHANGE RATES.....	103
9.1.	EXCHANGE RATE USED IN SECTION 6 ON INTERNET, SECTION 7 ON PUBLIC VOICE TELEPHONY TARIFFS AND SECTION 8 ON LEASED LINE TARIFFS.	103
9.2.	EXCHANGE RATE USED IN SECTION 1.5 ON ADMINISTRATIVE AND NUMBERING FEES	103
9.3.	EXCHANGE RATE USED IN SECTION 3 ON INTERCONNECTION AND SECTION 5.2 ON PRICES FOR LOCAL LOOP	103

1 PLAYERS IN THE FIXED MARKET

This section analyses the situation of the market players in the fixed telecommunications market (voice telephony and network services): number of operators authorised to operate a network and to provide public fixed voice telephony, number of players actually active in the market, licence fees for fixed services, market shares and the public ownership in the incumbent operators.

Data are based on the replies to the European Commission questionnaire provided by the national regulatory authorities and gives the situation as at August 2002.

The following definitions apply:

- Public network operators are defined as operators that install, manage and operate a telecommunications transmission network to provide public telephony services or public network services¹ (i.e. provision of leased lines).
- Public fixed voice telephony is defined as a service available to the public for the direct transport on a commercial basis of real-time speech via the public switched network, such that any user can use equipment connected to a network termination point at a fixed location to communicate with another user of equipment connected to another termination point. Voice telephone could be provided on an own self-operated network or on a leased network.
- Public fixed voice telephony (not including the installation of the network): provision of national and international public voice telephony by service providers that operate, control and manage the transmission capacity which is leased from other operators. Simple call-back and calling card services and operators dealing only with marketing, billing, etc., are excluded. The definition of service provider may differ from that used in the national law of individual countries (in some countries non-self operated network operators engage exclusively in reselling activities).
- Public voice telephony on an own self-operated network (not including network services): provision of public fixed voice telephony over a network fully controlled, operated and (wholly or partially) owned by the operator, excluding the provision of network services.
- Local operators are operators authorised to offer telecommunications services only to users located in specific areas (to whom they provide local calls as well as long-distance and international calls through interconnection agreements with other operators).
- National operators are operators authorised to offer telecommunications services without any geographical restriction. They may provide all types of telephony services (local, long-distance and international calls) to users located throughout the national territory.

¹ Public fixed network services are defined as the conveyance of calls, messages and signals over a telecommunications network, including any necessary switching. They may be network interconnection services, which are provided to other network operators to enable calls and associated functions to be passed through interconnected networks, or basic retail network services, which are provided to customers such as end-users or service providers.

1.1.LICENSING REGIMES IN THE MEMBER STATES

A variety of different national licensing regimes can be identified across Member States: telecommunications operators² may have individual licences/authorisations or be subject to registration/notification procedures, or may effectively operate in the market without being subject to any individual licence or declaration procedure. Furthermore, depending on the national licensing regime, in order to provide a particular service, the operators may have to hold (and pay for) a number of different licences or may have to pay for a licence with a wider scope than they require (i.e. nation-wide), even if they do not make full use of it.

Table 1 shows the licensing regimes in the 15 Member States for the four main categories of fixed services. The first column indicates whether the national licence regime provides for geographical restriction on the licence (local or national). The rest of the table shows the type of licence (or licences) required for four types of telecommunications service (see above for the definitions): public fixed voice telephony (not including the installation of the network); operation of a public network and provision of network services (not including voice telephony); public voice telephony on a owned self-operated network (not including the provision of network services); public voice telephony and network services on a owned self-operated network.

In the Netherlands and Finland the licence regimes provide for a registration/notification system. In Sweden both individual licence and registration systems are applied³. The Danish licensing regime system does not even require a notification.

In Greece public voice telephony can be provided by way of both an individual licence and a general authorisation, but in the latter case operators are not allowed to use numbers⁴.

The rest of the countries apply a system of individual licences. In the United Kingdom and Ireland a single fixed telecommunications licence exists, whatever the types of public service provided (voice telephony and/or public network)⁵. In Austria a single licence for voice telephony services exists, whether or not the operators self-operate a owned or a leased network. Belgium, Germany, Portugal and Sweden provide only two types of fixed licences (voice telephony services and public network), while the other countries also provide a single licence which combines several categories of more limited individual licences (i.e. public voice telephony on a owned self-operated network; public voice telephony and network services on an own self-operated network)⁶.

² In the following, “operators” means both network operators and service providers; “authorised operators” means operators that have been granted an individual licence/authorisation or are subject to a declaration/notification procedure.

³ According to the Swedish licensing regime, a notification is required for the provision (within a publicly available telecommunications network) of telecommunications services (fixed telephony, mobile services, leased lines, etc.) which require allocation of capacity from the telephony numbering plan. An individual licence is required for the provision of telecommunications services if the activity is considered to be of “considerable scope” with regard to the areas covered, the number of users or other comparable factors.

⁴ Simple resellers do not need any licence or authorisation.

⁵ In Ireland a separate licence for Public Network (basic licence) is also provided.

⁶ But in any case the allocation of the two separate licences for voice telephony and for public networks gives the same right as the “combined” licence.

Table 1. Licensing regime for public fixed services

	Distinction between national and local licence/registration	Type of fixed telecommunications services			
		Public fixed voice telephony services (not including the installation of the network)	Operation of owned public network and provision of network services (not including voice telephony)	Public voice telephony over a owned self-operated network	Public voice telephony and network services over a owned self-operated network
B	No	VT	NET	VT + NET	
DK	No	General Class Licence for Public Telecommunication Networks and Services (operators apply only for numbers)			
D	Yes	VT (class 4)	NET (class 3)	VT + NET (class 4 + class 3)	
EL	No	VT	NET	VT and NS on NET ⁷	
E	Yes	VT (type A)	NET (type C1)	VT and NS on NET (type B1)	
F	Yes	VT (L34-1)	NET (L33-1)	VT and NS on NET (L34-1 and L33-1)	
IRL	No	VT and NS on NET (General Licence) (NET ⁵ (Basic Licence))			
I	Yes	VT	NET	VTonNET	VT + NET (or VTonNET+NET)
L	No	VT (type C)	NET (type B)	VT and NS on NET (type A)	
NL	No	VT (registration)	NET (registration)	VT + NET (reg.)	
A	No ⁸	VTonNET ⁹	NET	VTonNET	VTonNET + NET
P	No	VT	NET	VT + NET	
FIN	Yes	VT (registr.)	NET (registr.)		
S	No	VT (lic./reg.)	NET (lic./reg.)	VT + NET (lic./reg.)	
UK	Yes	VT and NS on NET (PTO licence)			

Legend:

VT (Voice Telephony): individual licence/registration for providing public fixed voice telephony (not including the installation of the network)

NET (Network): individual licence/registration/notification for operation of a public network and for the provision of network services (not including voice telephony services)

VTonNET (Voice Telephony on Network): individual licence/registration/notification for providing public voice telephony on a owned self-operated network (not including network services)

VTandNSonNET (Voice Telephony and Network Services on Network): individual licence/registration/notification for provision of public voice telephony and network services on a owned self-operated network

VT + NET; VTonNET + NET; VTandNSonNET + NET: both licences needed for provision of the services

⁷ The Greek licensing regime provides for a list of 6 types of individual licence, among which those for public fixed networks and for public voice telephony. Moreover, at the request of the applicant, the NRA can issue a single licence which combines several categories of individual licence.

⁸ The legal framework for the licensing regime in Austria does not distinguish between local and national coverage of licences, although operators can apply for a licence restricted in scope as to the network and/or the services provided.

⁹ An individual licence is required for the provision of public voice telephony over a self-operated fixed telecommunication network. The network could either belong to the operators, or could be totally leased from a third-party network operator.

1.2. NUMBER OF FIXED TELECOMMUNICATIONS OPERATORS

This section shows the number of operators authorised to provide public fixed network services and public fixed voice telephony, as well as the number of operators effectively active in the market.

The figures include a great variety of operators: fixed network operators, service providers, cable modem access operators and operators with wireless local loop, mobile and satellite operators (for the fixed part of their networks and services).

Depending on the national licensing scheme, for some countries data for both local and national operators are given (see table 1). This does not mean that in the other countries all operators are national, but only that the licensing scheme does not require a licence limited as to its scope (in consequence all the operators have to pay for a national licence even if they are only local operators).

In the following charts, “national operator” means an operator that has been granted either a national licence/authorisation or a non-geographically limited licence under a licensing scheme which does not specify the geographic coverage.

The figure reflect the number of operators, rather than the number of licences. This is particularly true for the cable TV operators that operate their telecommunication licence through local licences granted to their local franchisees; in this case they have been considered as one single operator.

The number of local operators is not strictly comparable between Member States, since it varies considerably between countries depending on the division of the national territory into local areas.

Figures for Denmark may be incomplete due to the fact that there is neither a licensing requirement nor a central register of operators and their activities (operators only apply for numbers).

In Spain, the big increase from last year in the number of operators (46 local and 61 national in 2001) reflects the fact that many cable TV operators have transformed their provisional cable modem access concession into a B1 licence for provision of telecommunication services (voice telephony and network services) over a own network.

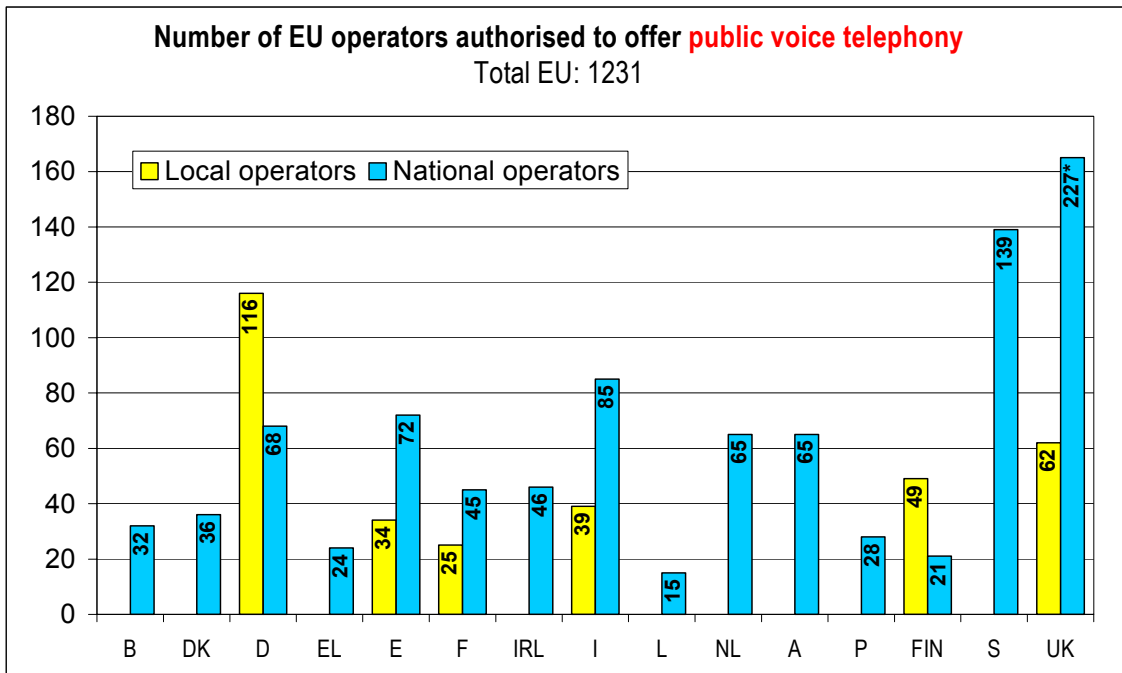
In Finland, 38 of the 48 regional operators are local incumbents and belong to the Finnet Group.

Data for Sweden include both licensed and notified operators.

In the United Kingdom, the 62 local cable franchise operators, owned by 2 companies, must hold (inter alia) a standard PTO licence for the provision of cable modem access services which, in turn, also gives the right to provide public voice telephony/network service. How many of these cable modem access operators are also providing public voice telephony/network services is unknown. From January 2001 the geographical restriction on cable companies ceased to exist and any cable licensee was free to operate outside the area laid down in its licence, but to maintain comparability with previous Reports we will continue to consider these operators as local. The big decrease in the number of local operators (cable modem access) for 2001 (134) and 2002 (62) is due to intensive merger activities in the market.

PUBLIC VOICE TELEPHONY SERVICES

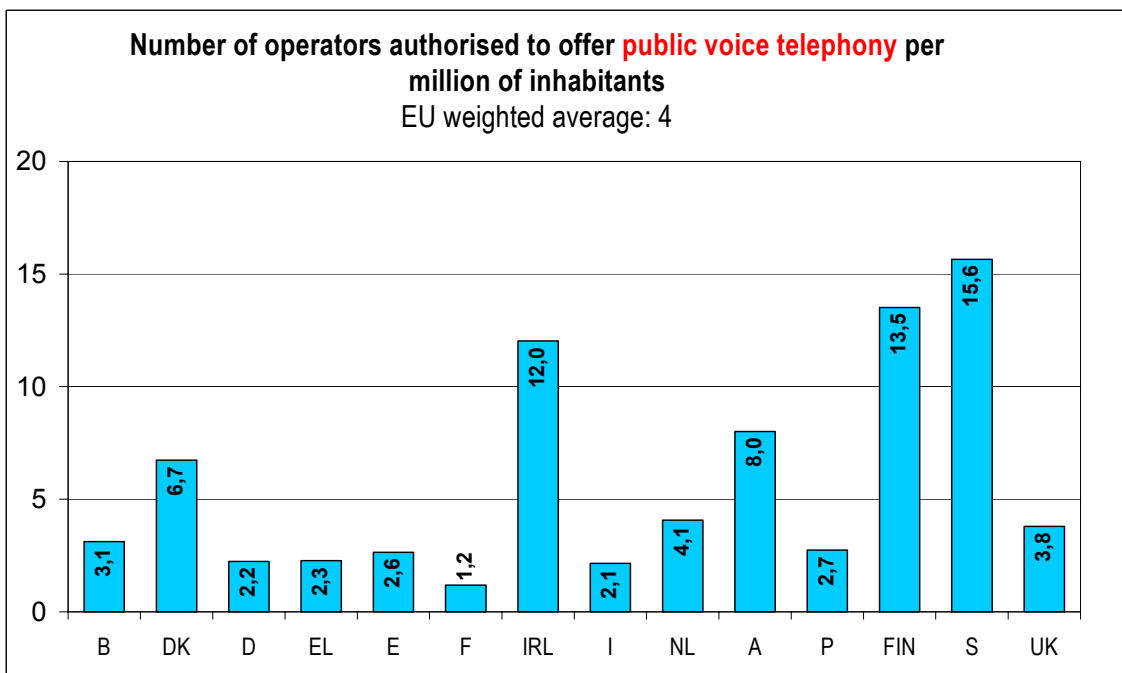
Chart 1



* Figure not to scale

- Due to the registration system, the number of operators authorised to provide public voice telephony figures for Denmark has been estimated using the number of operators that have been allocated geographical numbers and/or access codes. The estimated overall number of operators has declined from 48 in 2001 to 36 in 2002 due to extensive merging and cornering in the Danish telecommunications market. Moreover, the total number of operators has diminished due to a couple of bankruptcies among smaller operators.

Chart 2

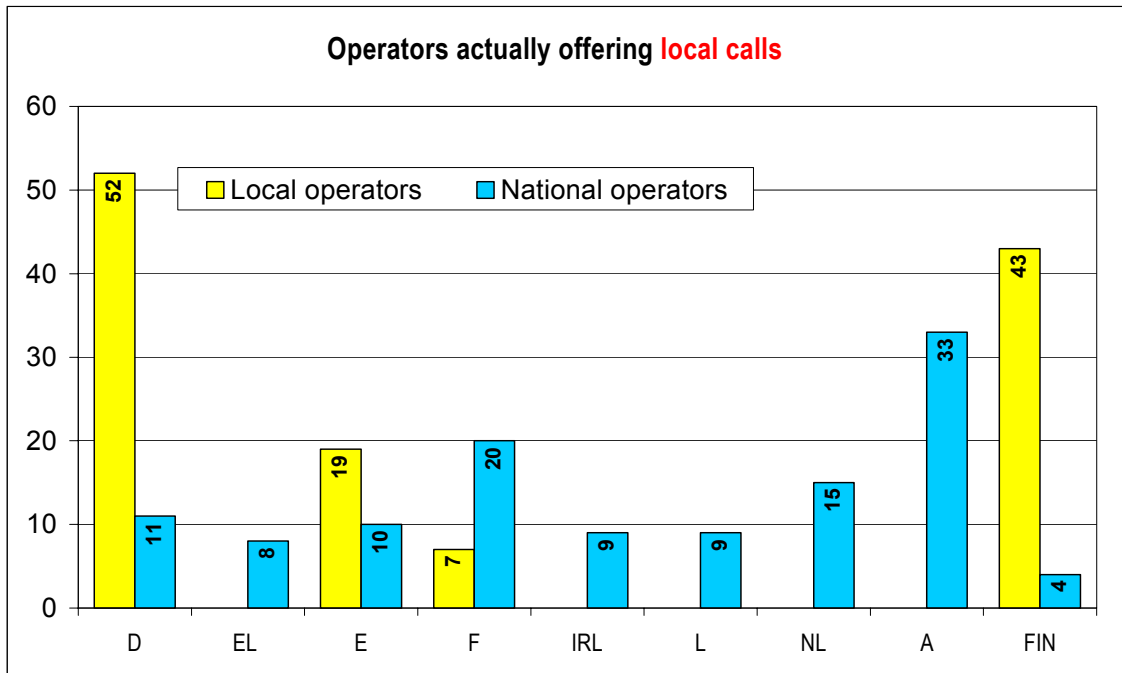


This indicator is not significant for Luxembourg, because of its peculiar characteristic in terms of low percentage of population in relation to the non-physical inhabitants.

The number of operators authorized to offer public fixed telecoms services indicates only the potential for competition in the market rather than the current level of competition. For this reason, where possible, an estimate is given of the number of operators actually active on the market. These figures do not show to what extent the operators are offering services. Many new entrants initially provide only services to business users in the main cities, even if they have a national license allowing them to offer all types of service throughout the country.

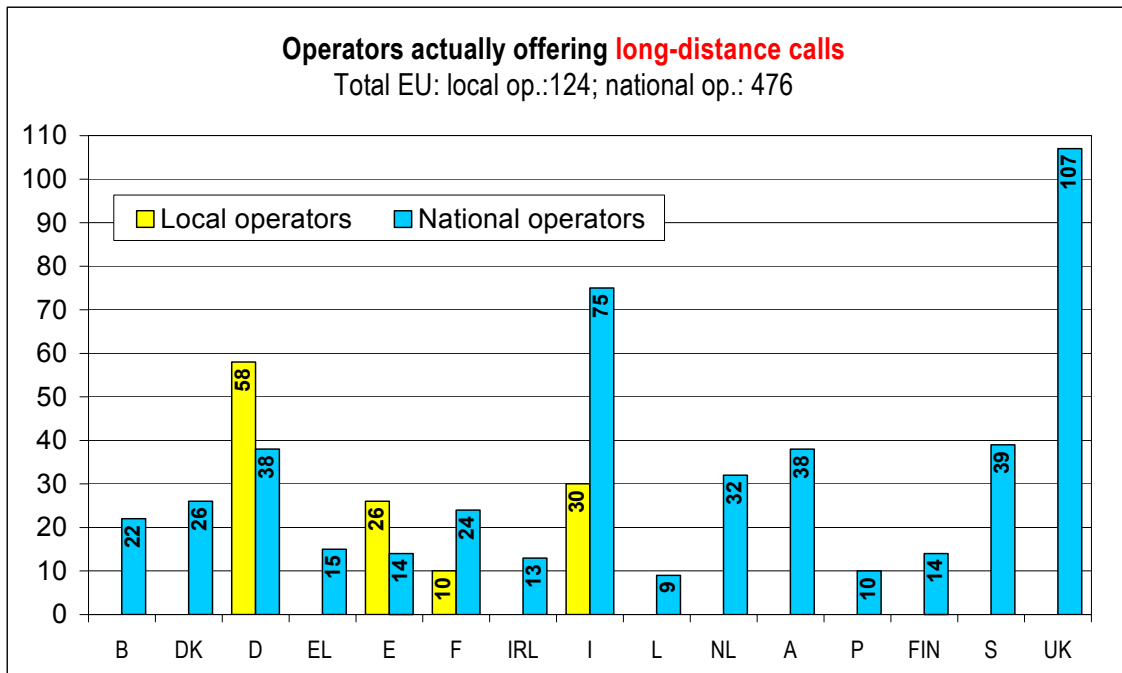
Figures in the following three charts should be read on a service by service bases (local, long-distance and international call markets) and not as country totals, since the same operator is usually authorized to offer more than one type of service.

Chart 3



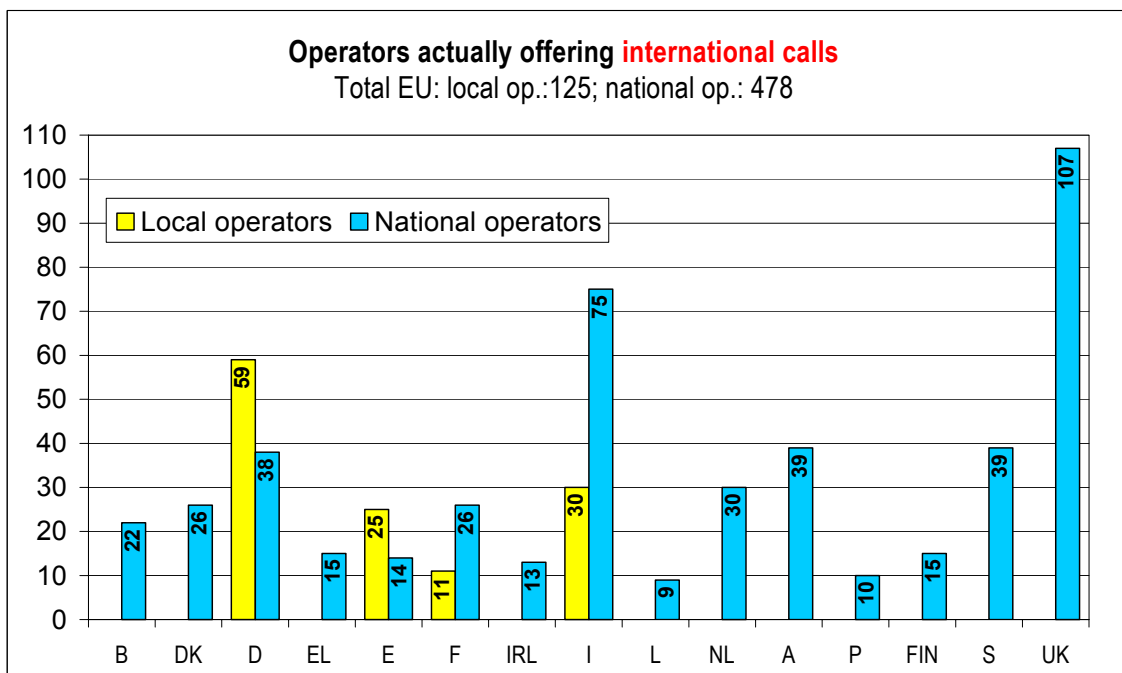
- Because of its small size, no distinction is made in Luxembourg between local and long-distance voice telephony services.
- B, DK, I, P, S and UK do not provide separate figure for the operators effectively providing local calls.

Chart 4



- Figure for Denmark should be considered as minimum.
- The figures for B, DK, I, P and S do not distinguish between the type of call provided (local, long-distance, international); the figure for the United Kingdom does not distinguish between local and national operators.

Chart 5



- Figure for Denmark should be considered as minimum.
- The figures for B, DK, I, P, S and the UK do not distinguish between the type of call provided (local, long-distance, international); the figure for the United Kingdom does not distinguish between local and national operators.

PUBLIC NETWORK

The following charts show the number of network operators with a public network licence and/or authorised to offer network services (conveyance of calls, messages and signals over a telecommunications network, including any necessary switching).

The distinction between local and national public network operators concerns the geographical scope of the network, while the provision of network services could be subject to a different geographical limitation. In the following, “local operators” means operators whose network does not cover the whole national territory (whatever the geographical scope of the service).

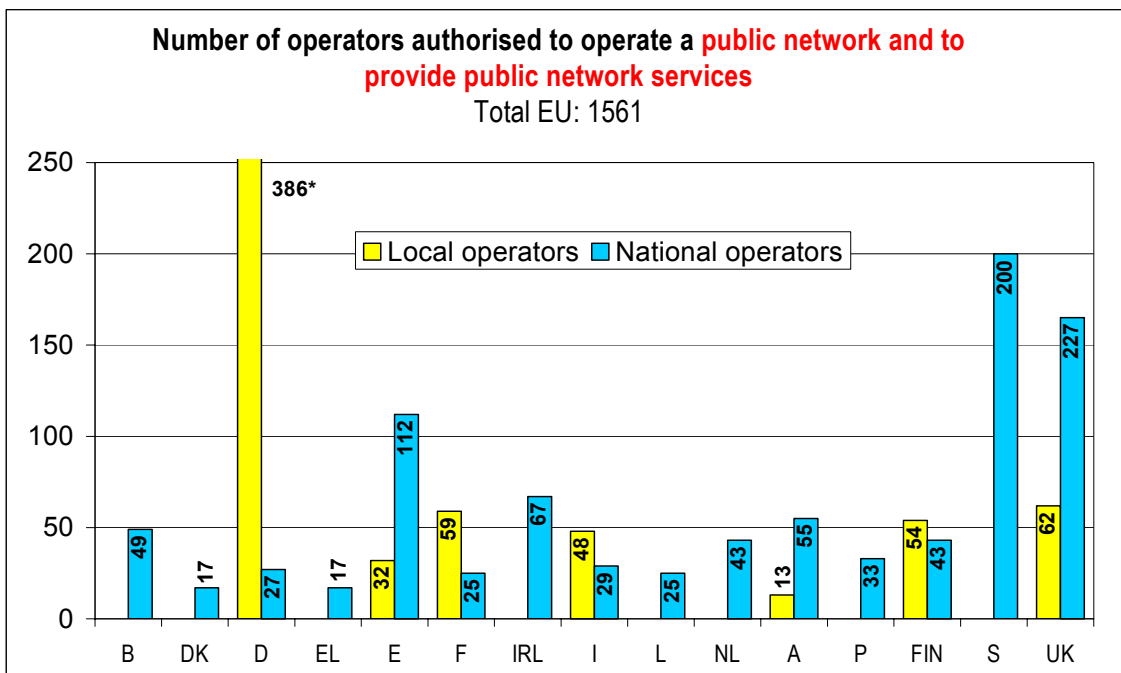
It should be noted that a licence to operate a local/regional public network does not necessarily imply the existence of local network access to customers (“the last mile”. See local loop access section for more details).

Figure for Spain does not include 75 local cable modem access operators, that have transformed their provisional cable modem access concession into a definitive public network licence.

Data for Ireland include both basic and general licences.

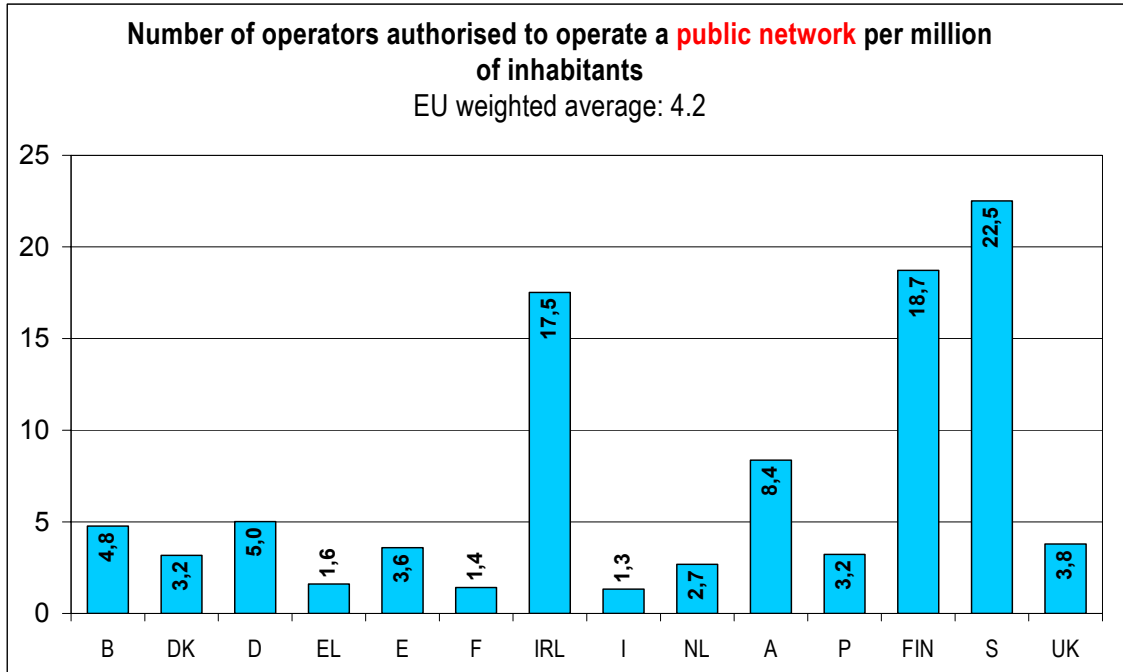
In the United Kingdom, the local operators refer to 62 local cable franchise operators, owned by 2 companies.

Chart 6



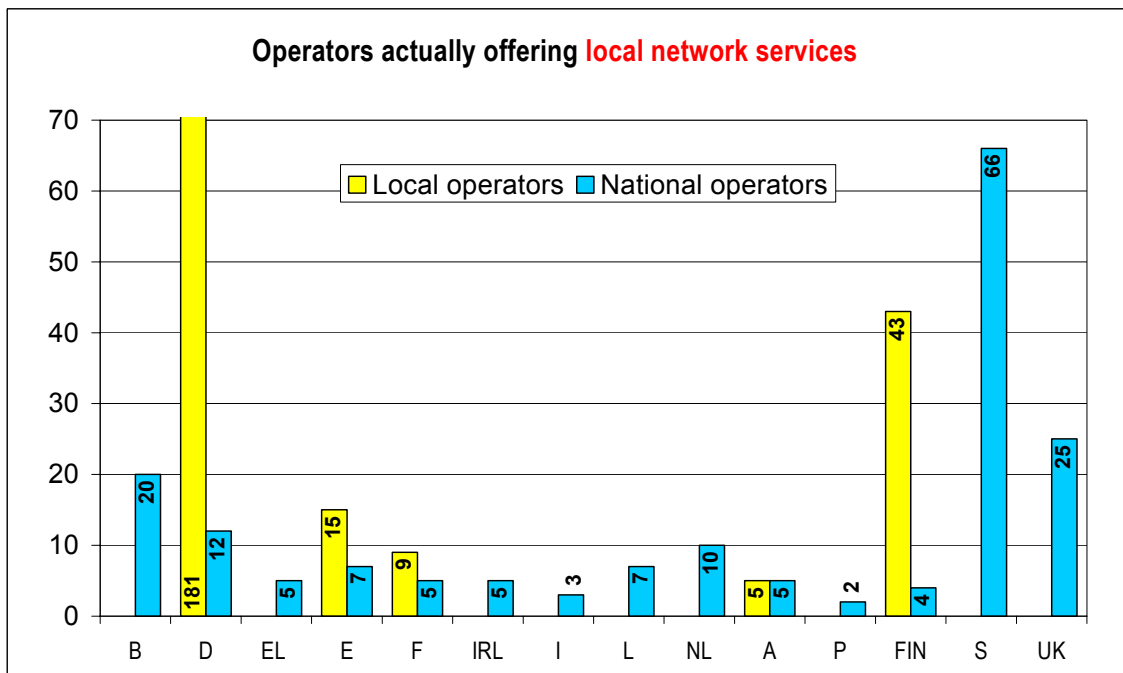
* Figure not to scale.

Chart 7



This indicator is not significant for Luxembourg, because of its peculiar characteristic in terms of percentage of population in relation to non-physical inhabitants.

Chart 8



- Value for Germany not to scale.

- Denmark does not provide separate figures for the operators effectively providing local network connections.

Chart 9

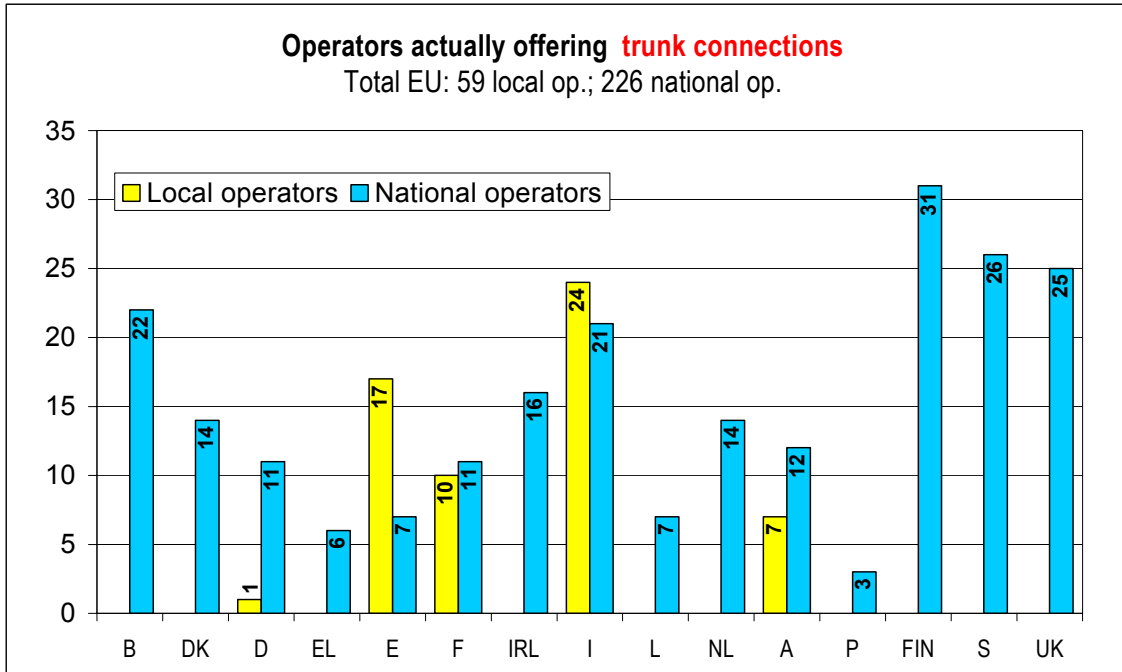
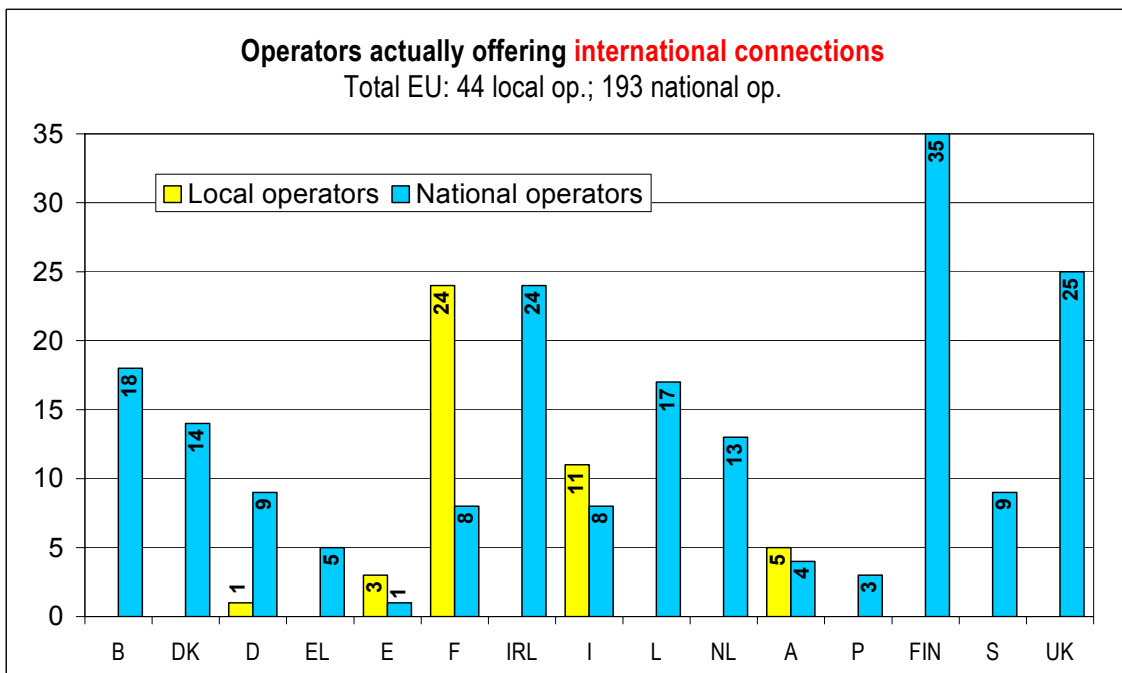


Chart 10

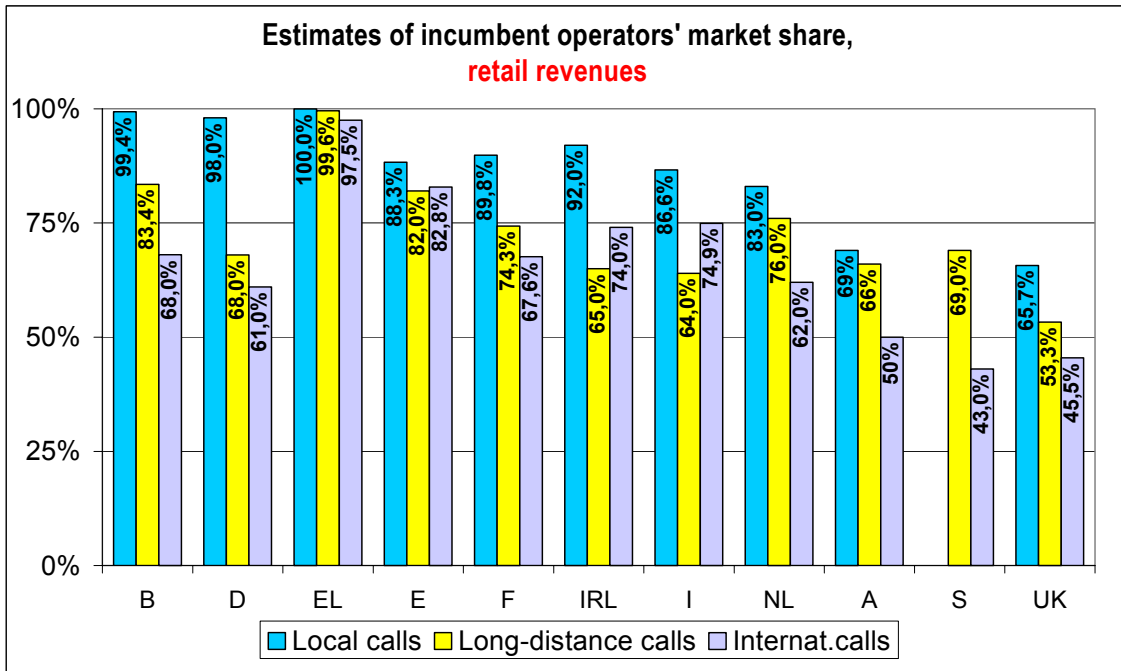


1.3. INCUMBENTS MARKET SHARE ON FIXED TELEPHONY MARKET

This section shows the incumbent's market share for telephony call market on the basis of retail revenues and outgoing traffic per minute. Unfortunately not all Member States collect both types of data, and differentiation between the various markets (local, long-distance, international) is not always available.

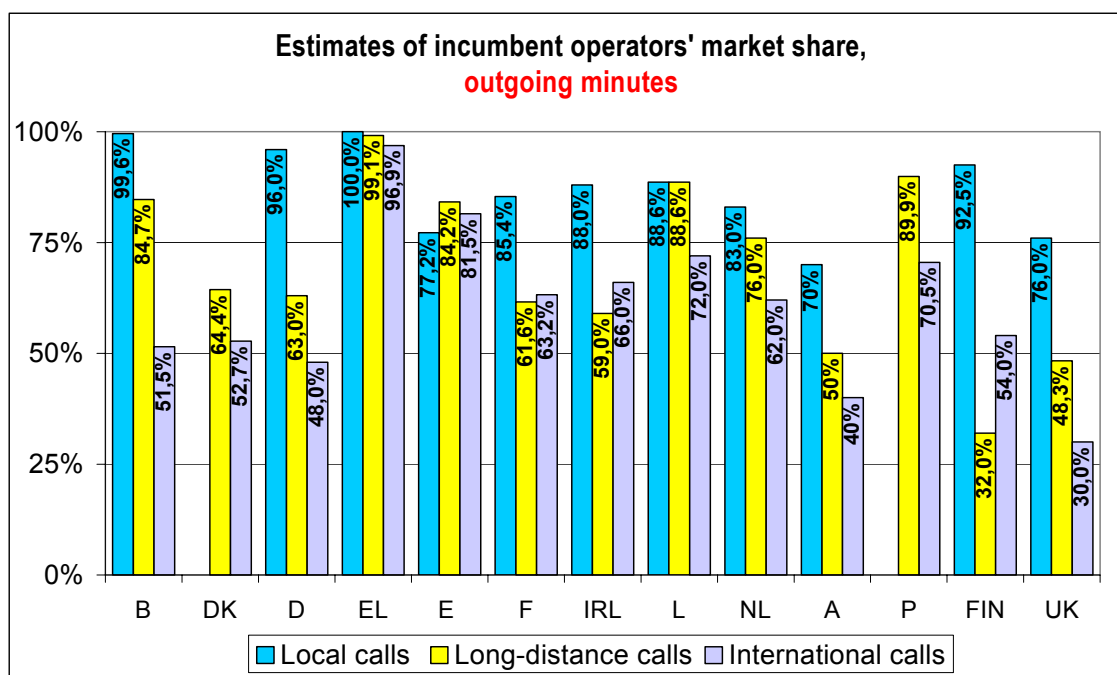
Figures have been provided by the national regulatory authorities and give the situation as for December 2001.

Chart 11



- Local call market include both phone calls and calls to internet.
- In Belgium, market share for local calls includes local calls to internet only; market share for long-distance calls refers to "national phone calls", including both local phone calls and long-distance calls.
- Data for Sweden for local calls market share is not available separately. Market share for long-distance calls refers to the total national calls", including local phone calls, calls to internet and long-distance calls.
- Data for DK, L, P, FIN are not available.

Chart 12



- Local call market include both phone calls and calls to internet.
- In Belgium, market share for local calls includes local calls to internet only; market share for long-distance calls refers to "national phone calls", including both local phone calls and long-distance calls.
- Market share for long-distance calls for Denmark and Portugal refer to the overall national calls", including local and long-distance phone calls, calls to internet and call to mobile.
- Because of its small size, no distinction is made in Luxembourg between the local and the long-distance call markets.
- Local calls market share for Finland refers to the combined share of the incumbents (Sonera, Elisa and Finnet). Market share for long-distance and international refers to Sonera only and do not include market share of Kakoverkko Ysi Oy and Finnet International Ab, that have been designated as SMP
- Local calls market share for DK, A and P are not available separately.

Chart 13

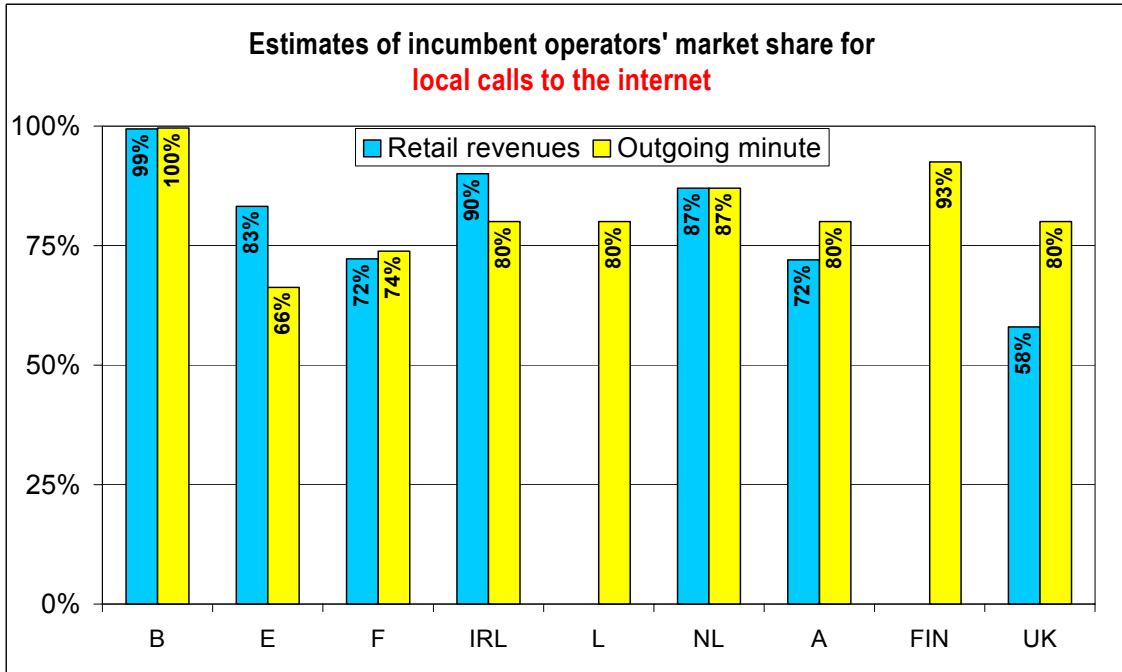
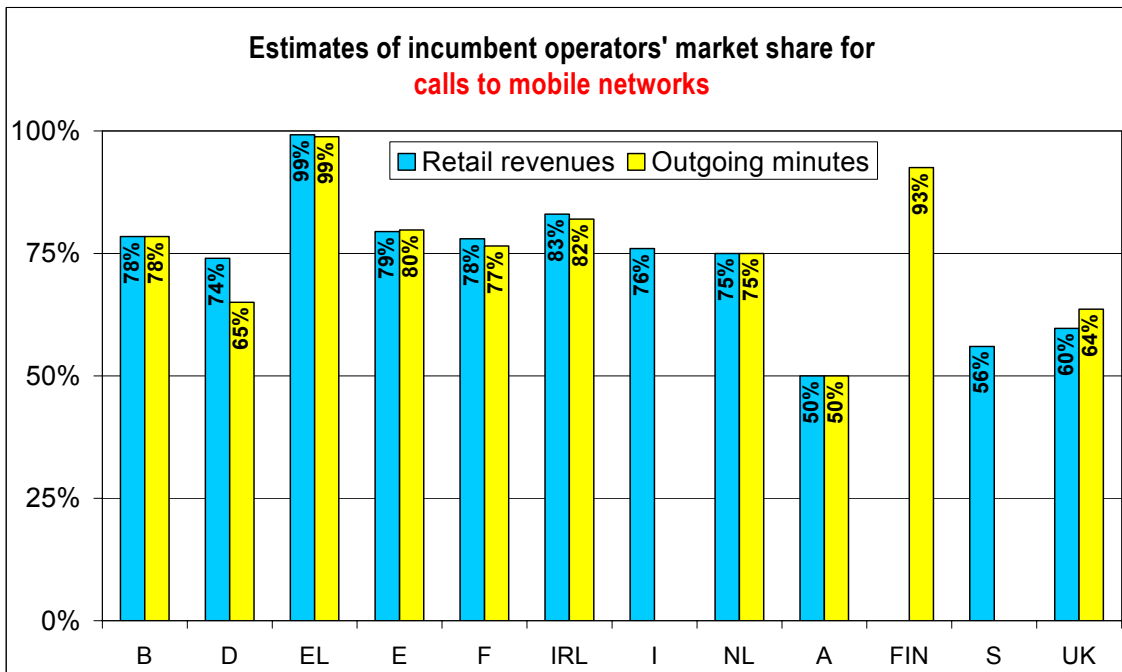


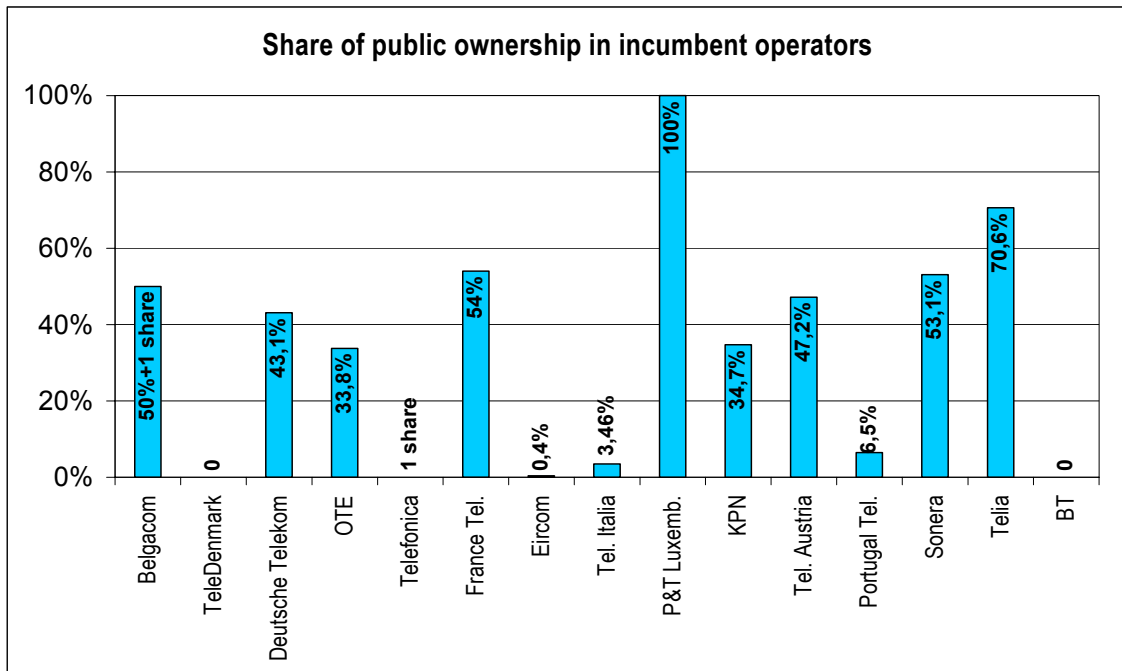
Chart 14



1.4. SHARE OF PUBLIC OWNERSHIP IN INCUMBENT OPERATORS

In order to provide a complete overview of the players in the EU telecommunications market, the following chart shows the degree of public ownership of the incumbent operators on the fixed market. Spain, Italy, Portugal and the Netherlands have a golden share in the incumbent operators, that gives the State special rights on strategic decisions.

Chart 15



1.5. ADMINISTRATIVE AND NUMBERING FEES FOR THE PROVISION OF PUBLIC VOICE TELEPHONY AND PUBLIC NETWORK SERVICES

This section provides data on Member States' administrative and numbering fees for public voice telephony and public network services licences. The data have been provided by the national regulatory authorities and give the position as at August 2002.

Administrative fees (table 2) are fees charged to cover the costs of examining an application for a licence, granting the relevant authorisation and verifying compliance with the terms and conditions set once the service or network is operational.

The categorisation of administrative fees is closely linked to the general licensing framework applicable in the individual countries. The categories of administrative fees will depend on whether market entry is subject to an individual licence or a notification under a general authorisation scheme (see table 1 for more details).

Numbering fees (table 3) are fees applied by many Member States which reflect the relative scarcity of numbering resources.

Table 3 sets out for each Member State the different kinds of fees charged for the following categories of numbers needed by each operator to provide public voice telephony services:

- standard telephone numbers (ITU-T Recommendation E.164) (for subscribers directly connected to the operator),
- carrier selection codes (to select the operator)
- signalling point codes¹⁰ (for interconnection with other networks at national (NSPC) and international (ISPC) level).

Ireland, Austria, Sweden, Portugal and the United Kingdom do not charge for such numbers, although often the right to use numbers is implicitly included in the licensing fees.

¹⁰ Signalling Point Codes (SPCs) are used in public telephone networks using CCITT Signalling System No 7 (SS7). SPCs are the addresses of the signalling points. Two types of SPC are usually individually assigned to network operators: International SPCs and National SPCs. ISPCs are used in international transit networks, e.g. to address networks which connect the various networks in a specific country or to identify the national gateways of the various networks.

1.5.1. ADMINISTRATIVE AND NUMBERING FEES FOR FIXED VOICE TELEPHONY

Table 2 Administrative fees (August 2002, €)

	Public voice telephony over a leased network (service providers)		Operation of public fixed network and provision of network services over a own network (not including voice services)		Public voice telephony over a own self-operated network (not including network services)		Public voice telephony and network services over a own self-operated network	
	Single payment	Annual fee	Single payment	Annual fee	Single payment	Annual fee	Single payment	Annual fee
B	Ind. Licence for VT		Ind. Licence for NET		Individual licence for VT + individual licence for NET			
	9 340	8 000 if SMP: 13 330	13 327	9 329 if SMP: 18 658	22 667	17 329 if SMP: 31 988	22 667	17 329 if SMP: 31 988
DK	0	0	0	0	0	0	0	0
D	Ind. Licence for VT (class 3)		Ind. Licence for NET (class 4)		Individual licence for VT + individual licence for NET			
The regulation on licence fees is currently being reviewed by the government ¹								
EL	Ind. Licence for VT		Ind. Licence for NET		Individual licence for VT + individual licence for VT and NS on NET ⁱⁱ		Individual licence for VT and NS on NET (type B1)	
	0	% of turnover (from 0.5% to 0.025%; ⁱⁱⁱ min 600)	0	% of turnover (from 0.5% to 0.025%; ⁱⁱⁱ min 600)	0	% of relevant turnover (from 0.5% to 0.025%; ⁱⁱⁱ min 600)	0	% of relevant turnover (from 0.5% to 0.025%; ⁱⁱⁱ min 600)
E^{iv}	Ind. licence for VT (type A)		Ind. licence for NET (type C1)		Ind. licence for VT and NS on NET (type B1)		Ind. licence for VT and NS on NET (type B1)	
	0	0.15% of relevant turnover	0	0.15% of relevant turnover	0	0.15% of relevant turnover	0	0.15% of relevant turnover
F	Ind. licence for VT (L34-1)		Ind. licence for NET (L33-1)		Ind. licence for VT and NS on NET (L34-1 and L33-1)		Ind. licence for VT and NS on NET (L34-1 and L33-1)	
	38 112	15 224	266 785	133 392	304 897	152 449	304 897	152 449
	38 112	15 224	76 224	38 112	114 386	57 168	114 386	57 168
	38 112	15 224	38 112	15 244	76 224	38 112	76 224	38 112
	38 112	15 224	15 244	7 622	53356	26 678	53356	26 678
≤ 1 city of 100 000 inhabitants	38 112	15 224	7 622	3 811	45 734	22 867	45 734	22 867
If SMP	Not relevant	Not relevant	Double fees	Double fees	Double fees	Double fees	Double fees	Double fees

Table 2 Administrative fees (cont'd)

	Public voice telephony over a leased network (service providers)		Operation of public fixed network and provision of network services over a own network (not including voice services)		Public voice telephony over a own self-operated network (not including network services)		Public voice telephony and network services over a own self-operated network	
	Single payment	Annual fee	Single payment	Annual fee	Single payment	Annual fee	Single payment	Annual fee
IRL	12 500	1 015 or 0.2% of turnover > 635 000	12 500 (3 175 if basic licence) ^{vi}	1 015 or 0.2% of turnover > 635 000	12 500	1 015 or 0.2% of turnover > 635 000	12 500	1 015 or 0.2% of turnover > 635 000
I^{vii}	Individual licence for VT and NS on NET (General licence) ^v							
Whole country	Ind. licence for VT		Ind. licence for NET		Ind. licence for VTonNET		Ind. lic. for VT + ind. lic. for NET Or Ind. lic. VTonNET + ind. lic. NET	
≤ 10 million inh.	54 598	65 519	65 519	109 198	60 058	65 519	120 117 ^{viii} (125 577) ^{ix}	174 716
≤ 200 000 inh.	21 840	27 300	21 840	54 598	27 300	27 300	43 679 ^{viii} (49 139) ^{ix}	81 893
	10 919	10 919	10 919	27 300	16 379	10 919	21 840 ^{viii} (27 300) ^{ix}	38 219
L	Ind licence for VT (type C)		Ind. licence for NET (type B)		Ind. licence for VT and NS on NET (type A)			
	620	37 184 plus % of turnover (min. 0.15% max. 0.30%)	6 197	12 394 plus % of turnover (min. 0.10% max. 0.25%)	7 436	49 578 plus % of turnover (min. 0.20% max. 0.35%)	7 436	49 578 plus % of turnover (min. 0.20% max. 0.35%)
	Registration for VT		Registration for NET		Registration for VT + Reg. for NET			
NL	363	1 985 if SMP: 1 933 205	363	4 590	363	4 590 if SMP: 2 173 775	363	4 590 if SMP: 2 173 775
A^x	Ind. Licence for VTonNET ^{xi}		Ind. Licence for NET		Ind. lic. VTonNET + ind. lic. NET			
	0	0	5 087	0.14% of turnover	5 087	0.14% of turnover	10 174	0.14% of turnover
P	Individual licence for VT		Ind. Licence for NET		Individual licence for VT + individual licence for NET			
	9 976	9 976	9 976	9 976	19 952	19 952	19 952	19 952

Table 2 Administrative fees (cont'd)

	Public voice telephony over a leased network (service providers)		Operation of public fixed network and provision of network services over a own network (not including voice services)		Public voice telephony over a own self-operated network (not including network services)		Public voice telephony and network services over a own self-operated network	
	Single payment	Annual fee	Single payment	Annual fee	Single payment	Annual fee	Single payment	Annual fee
	Registration for VT		Registration for NET		Registration for VT + Reg. for NET		Registration for VT + Reg. for NET	
FIN	0	0	0	0	0	0	0	0
S Notification ^{xii}	Individual lic./reg. for VT		Individual lic./reg. for NET		Individual lic./reg. for VT + Individual lic./reg. for NET			
	0	- 115 for turnover <573 160 - 4 012 for turnover >573 160	0	- 115 for turnover <573 160 - 4 012 for turnover > 573 160	0	- 115 for turnover < 573 160 - 4 012 for turnover >573 160	0	- 106 for turnover <317 511 for each relevant activity - 2 646 for turnover >317 511 for each relevant activity
Licence	11 463	- 1,57 % of turnover (min. 5 732/area of licence) - SMP operator: extra 0.5% of voice telephony turnover (max 11 463 190)	11 463	- 1.57 of turnover (min. 5 732)	11 463	- 1,57 % of turnover (min. 5 732/area of licence) - SMP operator: extra 0.5% of voice telephony turnover (max 11 463 190)	22 928	- 1,57% of turnover (min. 100 000 SEK) for each relevant activity (min. 10 584) - SMP operator: extra 0.5% of voice telephony turnover (max 11 463 190)
UK	Individual licence for VT and NS on NET (PTO licence)		Individual licence for VT and NS on NET (PTO licence)		Individual licence for VT and NS on NET (PTO licence)			
	59 975	new entrants: 4 498 for the first two years, then 4 498 if turn. < 7 496 768 - % of turnover to a max 0.08% if turnover > 7 496 768	59 975	new entrants: 4 498 for the first two years, then 4 498 if turn. < 7 496 768 - % of turnover to a max 0.08% if turnover > 7 496 768	59 975	new entrants: 4 498 for the first two years, then 4 498 if turn. < 7 496 768 - calculated % of turnover to a max 0.08% if turnover > 7 496 768	59 975	new entrants: 4 498 for the first two years, then 4 498 if turn. < 7 496 768 - calculated % of turnover to a max 0.08% if turnover > 7 496 768

Legend:

VT (Voice Telephony): individual licence/registration for providing public fixed voice telephony (not including the installation of the network)

NET (Network): individual licence/registration/notification for operation of a public network and for the provision of network services (not including voice telephony)

VTonNET (Voice Telephony on Network): individual licence/registration/notification for providing public voice telephony on a owned self-operated network (not including network services)

VTandNSonNET (Voice Telephony and Network Services on Network): individual licence/registration/ notification for provision of public voice telephony and network services on a owned self-operated network

VT + NET, VTonNET + NET, VTandNSonNET + NET: both licences needed for provision of the services

- ⁱ In its judgement of 19 September 2001, the Highest Administrative Court (the Bundesverwaltungsgericht, BVerwG) annulled the regulation on licence fees on the basis that it does not reflect the principle that licence fees should only cover administrative costs. The regulation on licence fees is currently being reviewed by the government. Pending the previous proceedings in national courts, operators have been charged licence fees and have been granted suspension of the payment at their request. Since the judgement of the BVerwG, licence fees are not charged and licences are issued under the provision that licence fees will be fixed on the basis of the forthcoming regulation.
- ⁱⁱ The Greek licensing regime provides for a list of 6 types of individual licence, among which those for public fixed networks and for public voice telephony. Moreover, at the request of the applicant, the NRA can issue a single licence which combines several categories of individual licence.
- ⁱⁱⁱ The fees are determined based on an interval function with respect of the turnover of the relevant activities, with a minimum of 600 Euro: 0.5% of turnover for the first 300 million euro, 0.2% for turnover between 300 and 600 million euro, 0.15% for turnover between 600 and 900 million euro, 0.1% for turnover between 900 and 1 200 Meuro, 0.05% for turnover between 1 200 and 1 500 million euro, 0.025% for turnover over 1 500 million euro.
- ^{iv} According to the General Telecommunications Act, the exact amount of the annual fees (percentage value) will be fixed every year by Parliament, taking into account the need to cover the administrative costs of the licensing management and controls system. The annual fees cannot be higher than 2%. For 2001 the value set is 0.15%.
- ^v In Ireland a separate licence for Public Network (basic licence) is also provided.
- ^{vi} Holder of a general licence are permitted to operate a public network and provide voice telephony and network services. A basic licence is sufficient to operate a public network and provide network services.
- ^{vii} Current fees are obtained adjusting original values provided by Ministerial Decree 05.02.1998 on the basis of inflation foreseen in the *Documento per la programmazione economica e finanziaria* on a year by year basis.
- ^{viii} Corresponding to the combination of licences for provision of voice telephony and for provision of public network services.
- ^{ix} Corresponding to the combination of licences for provision of voice telephony on a self-operated network and for provision of public network services.
- ^x For all types of operator, an annual fee (depending on turnover and market share) is payable to contribute to the overall costs of the regulator. The annual percentage varies between 0.1% and 0.2% of turnover (in 1999 it was 0.12%, in 2000 it was 0.1%). The value for the year 2001 will be communicated in the second half of 2002.
- ^{xi} An individual licence is required for the provision of public voice telephony over a self-operated fixed telecommunication network. The network could either belong to the operators, or could be totally leased from third-party network operator.
- ^{xii} A licence is required if an operator's activity is considered "significant" regarding the area of distribution, the number of users and similar factors. These operators typically have a market share of 10-15% (never less than 5%).

Table 3 **Numbering fees (€)**

(S = one-off fee; A = annual fee; where relevant: $S(r)/A(r)$ = one-off/annual fee in case of allocation of a number that had been reserved before)

	B	DK ¹¹	D	EL	E	FIN	F	I	L	NL
Standard telephone numbers (E.164)	per block of 10 000 numbers S: 400 A: 134	per number (8-digit numbers) A: 0.2571	per block of 1 000 10-digit numbers S: 500.00 per block of 1 000 11-digit numbers S: 50.00	per number: S: 0.03 A: 0.025 reservation: A: 0.0125	per number A: 0.03	per number A: 0.34	per number reservation A: 0.02 A: 0.01	per number reservation A: 0.0109296 A: 0.0054648	per number part of a block of 10 000 numbers S: 0.12 A: 0.12 per number in amount < a block: S: 61.97 + n*0.24 A: 61.97 + *0.24	per block of 1000 numbers. reservation S: 13.60 61 A: 1.60 allocation S: 13.60 A: 9.75
Carrier selection code	4 digits S: 1 333 A: 13 327	4 digits A: 2 570.97 5 digits A: 257.10	4 digits S: 500.00	4digit: S: 15 000 A: 15 000 5digit: S: 1 500 A: 1 500	per number A: 0.03 x a factor indicating the number of 9-digit numbers occupied in the numbering plan	International A: 3 digits 90 000 A: 4 digits 18 000 A: 5 digits 3 600 Long distance A: 3 digits 45 000 A: 4 digits 9 000 A: 5 digits 1 800	reservation A: 4 digits 54 598 A:5 digits 27 300 allocation A: 4 digits 26 976 A: 4 digits 109 198 A: 5 digits 54 598	reservation A: 4 digits 54 598 A:5 digits 27 300 allocation A: 4 digits 26 976 A: 4 digits 109 198 A: 5 digits 54 598	S: 1 239 A: 1 239	reservation S: 450 A: 112.5 allocation S: 450 A: 225
International Signalling Point Codes (for international interconnection)	S: 400 A: 13 327	A: 25 709.71	S: 375			A: 1680			S: 991 A: 495	reservation S: 450 A: 112.5 allocation S: 450 A: 225
National Signalling Point Codes (for national interconnection)	S: 400 A: 0		S: 187.50			A: 0.7			S: 991 A: 495	per block of 8 numbers reservation S: 450 A: 112.5 allocation S: 450 A: 225

¹¹ Changes in numbering fees in DK are due to a change in the exchange rate to Euro.

2 CONSUMER'S CHOICE OF FIXED OPERATORS

This section analyses the fixed voice telephony market from the point of view of the consumers.

The following indicators have been considered: the percentage of subscribers with choice of operators and the percentage of subscribers actually using a provider other than the incumbent. The facilities used by the operators to provide public voice telephony services have also been included.

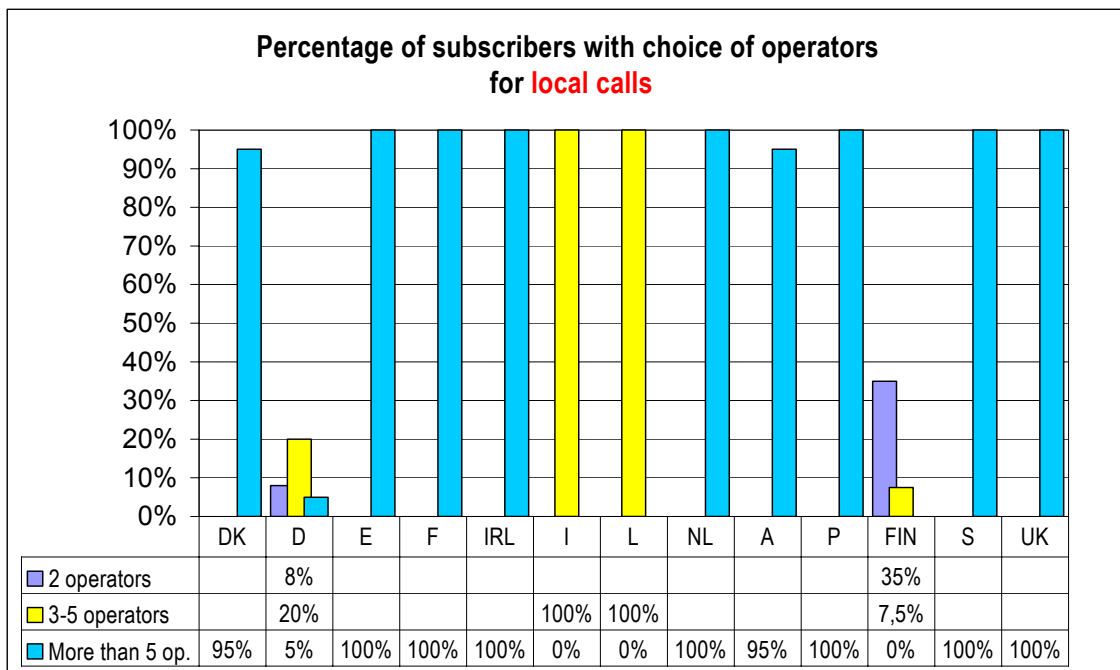
The data presented below has been provided by the national regulatory authorities and, unless otherwise indicated, reports the position at August 2002. Figures for countries not included in the charts are not available.

Figures are not comparable with those published in the 7th Implementation Report, since they are now based on the percentage of subscribers rather than population.

2.1. PERCENTAGE OF SUBSCRIBERS WITH CHOICE OF OPERATORS FOR FIXED CALLS

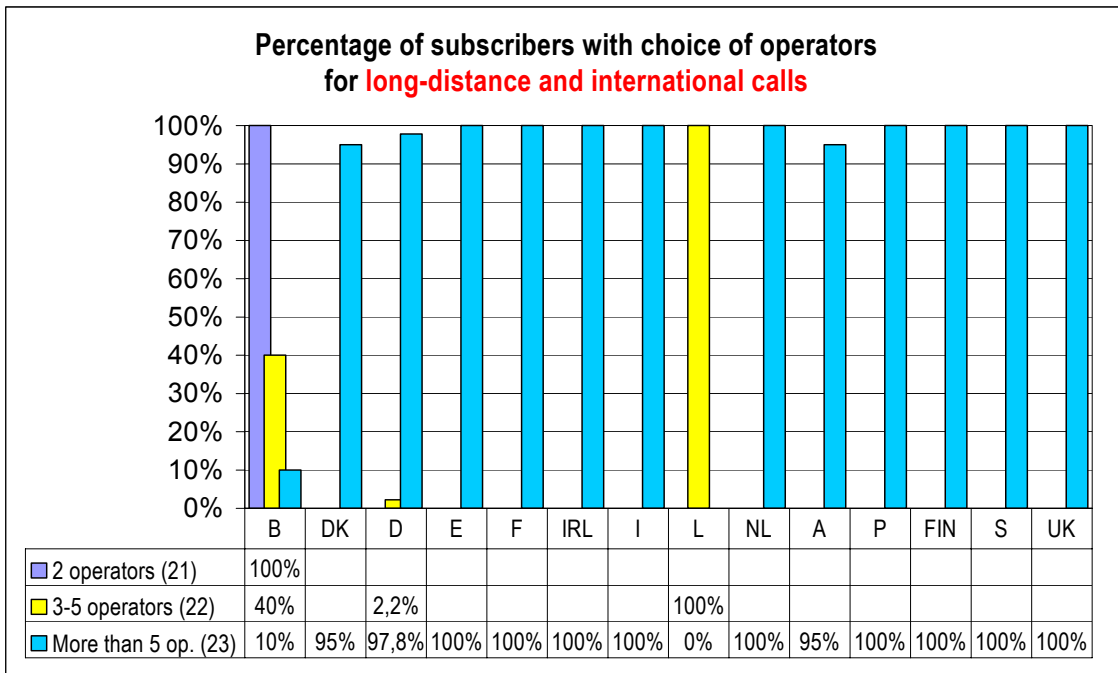
The following charts show the percentage of subscribers with choice of operators for local, long-distance and international calls and for direct access. The choice could be between only 2 operators, between 3 to 5 operators or more than five operators.

Chart 16



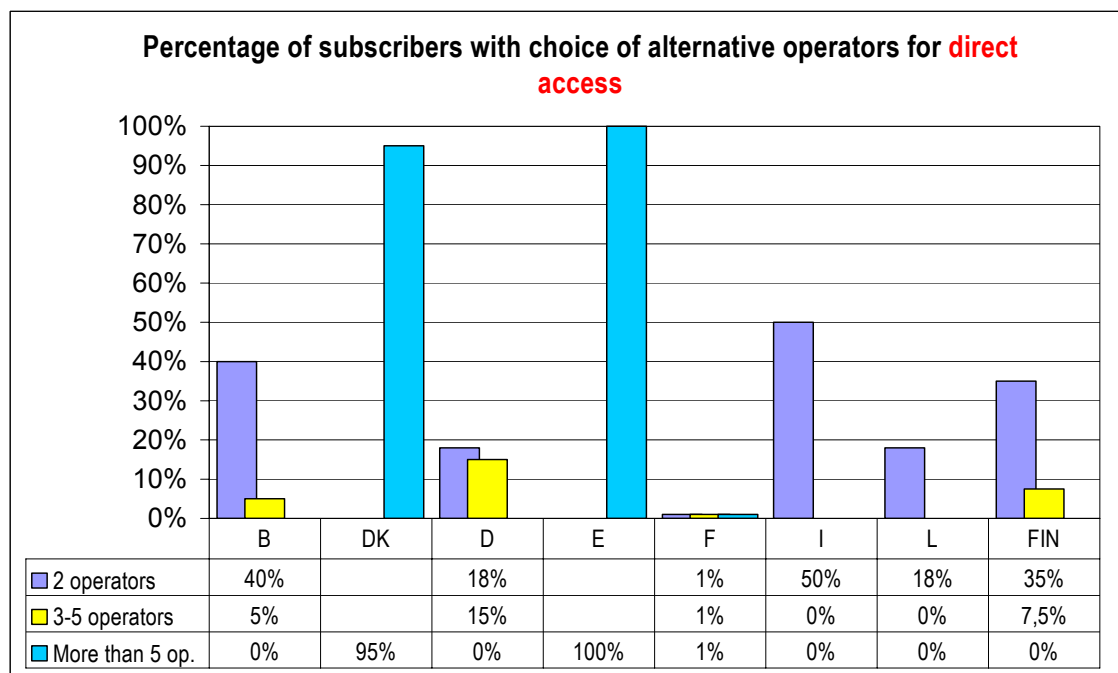
- Data for Belgium and Greece are not available.
- Figure for Denmark should be considered as minimum.
- Figure for France refer to end of March 2002.
- Data for Italy for "more than 5 operators" are not available.

Chart 17



- Figure for Denmark should be considered as minimum.
- Figure for Greece is not available.
- Figure for France refer to end of March 2002

Chart 18

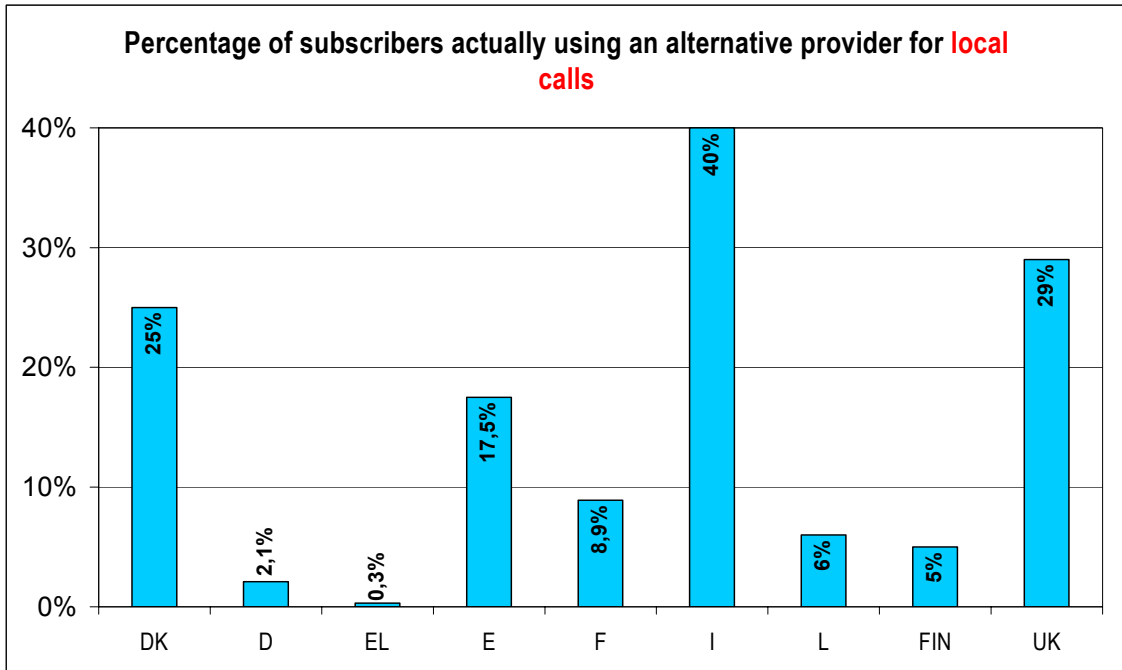


- Figure for Denmark, should be read as minimum.
- Figure for France should be read as maximum and refer to end March 2002.

2.2. PERCENTAGE OF SUBSCRIBERS ACTUALLY USING AN ALTERNATIVE PROVIDER OTHER THAN THE INCUMBENT

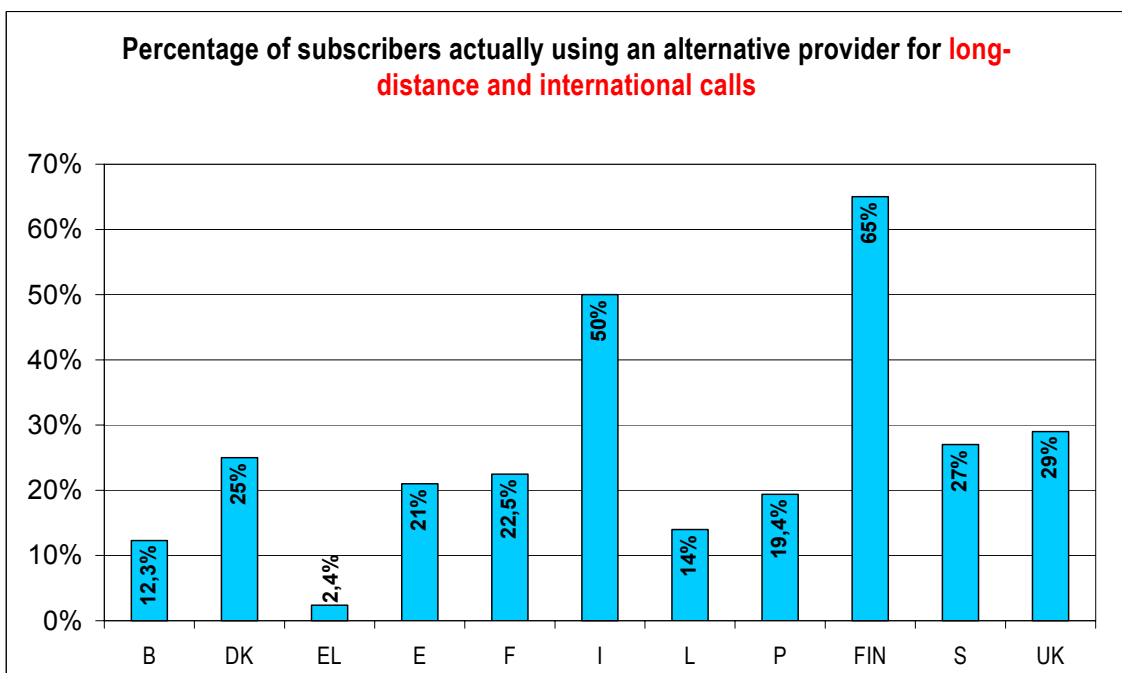
Unlike the previous indicators, that show the theoretic possibility of choice for the consumers, the following charts show the percentage of subscribers actually using an alternative provider for voice services.

Chart 19



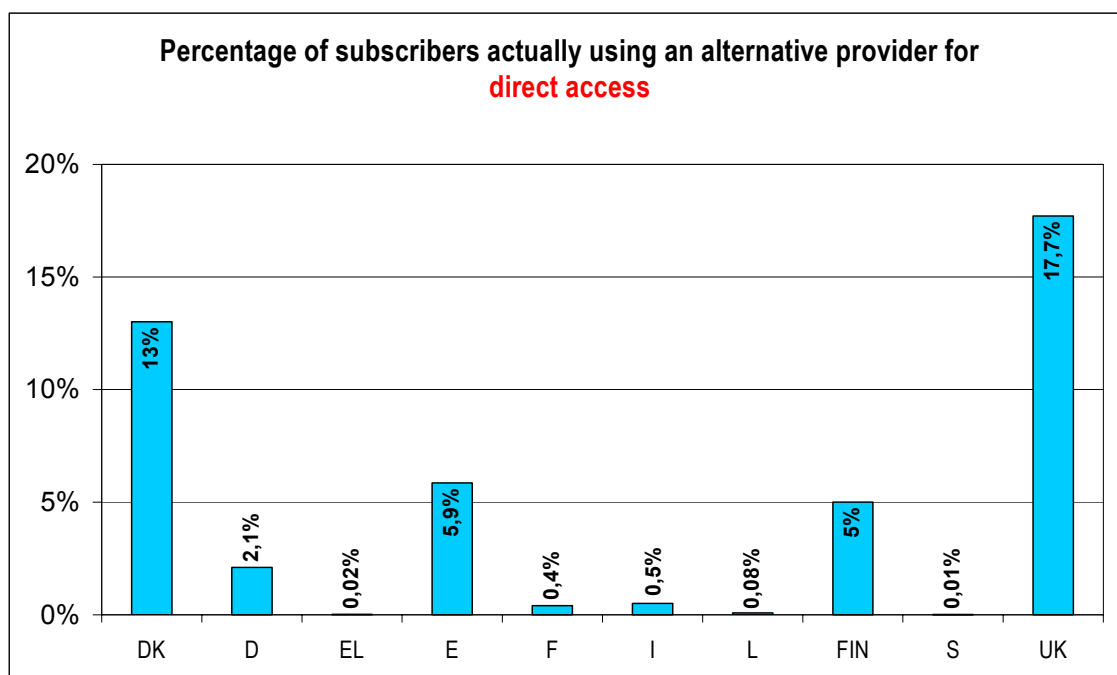
- Figure for Spain and France refer to subscribers using pre-selection and/or direct access only, and they should be considered as minimum
- Figure for Denmark should be considered as minimum.

Chart 20



- Figure for Denmark should be considered as minimum.
- Figure for Spain and France refer to subscribers using pre-selection and/or direct access only, and then should be considered as minimum

Chart 21



- Figure for Sweden should be considered as maximum.

2.3.FACILITIES USED BY NEW ENTRANTS TO PROVIDE VOICE TELEPHONY

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

The following charts show the estimated number of alternative operators using carrier selection, carrier pre-selection or direct access to provide voice telephony services to residential users.

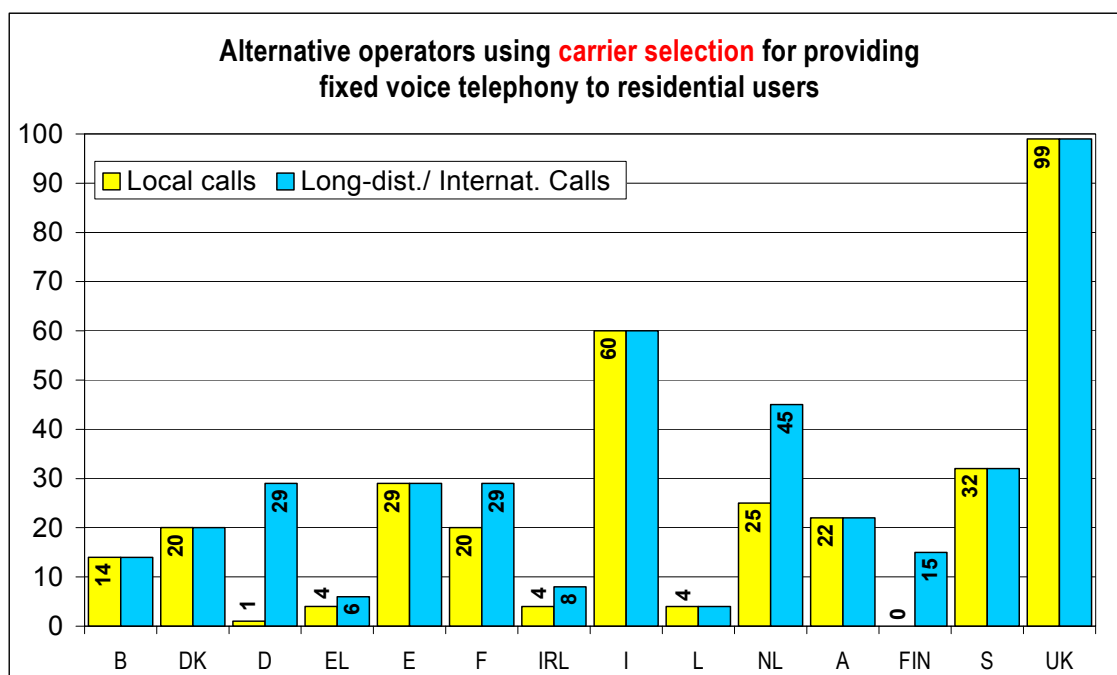
These figures are estimates provided by the national regulatory authorities and refer to July 2002. The charts should be read separately and not summed up as country totals, since most operators use more than one means of providing call services.

As indicated in the section on numbering, at the reference date used for these charts, carrier selection and pre-selection was not yet available for local calls in Germany, but legislation has been introduced recently. Furthermore, carrier pre-selection is not yet available in Greece, due to the deferment granted until 1 January 2003. In the United Kingdom, carrier pre-selection for local calls is only available via “autodiallers”.

Because of its small size, no distinction is made in Luxembourg between local and long-distance calls.

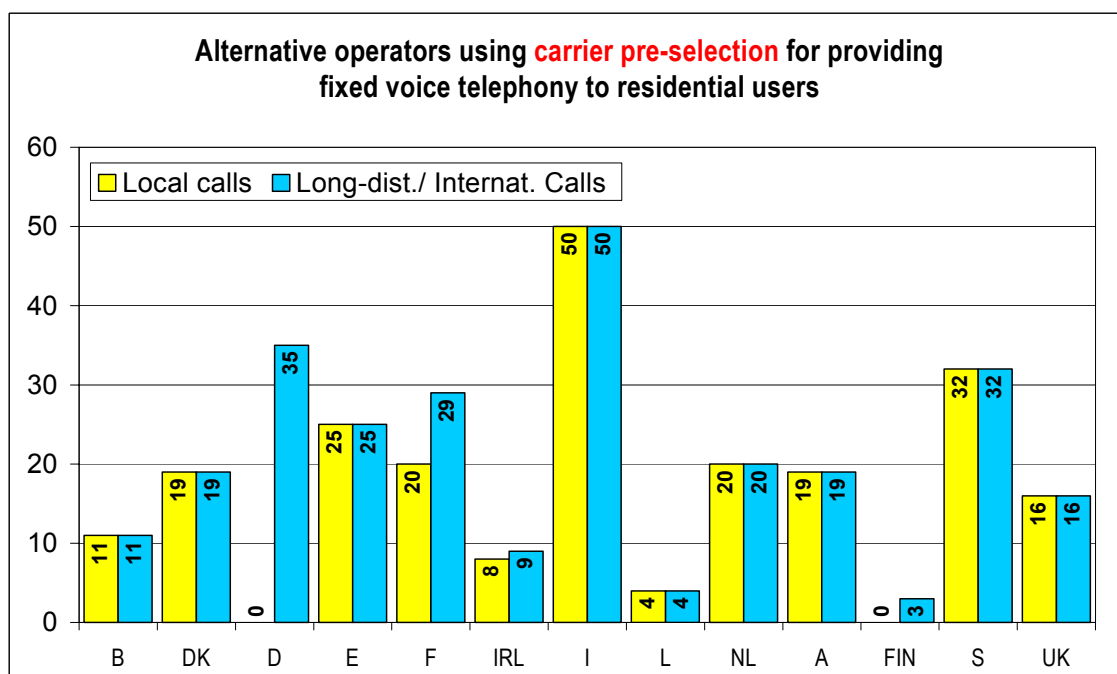
The information is not available for Portugal.

Chart 22



- Figure for Denmark should be considered as minimum.
- Data for France refer to May 2002.
- Figure for Ireland refers to August 2001.
- The United Kingdom estimate refer to residential and business users.

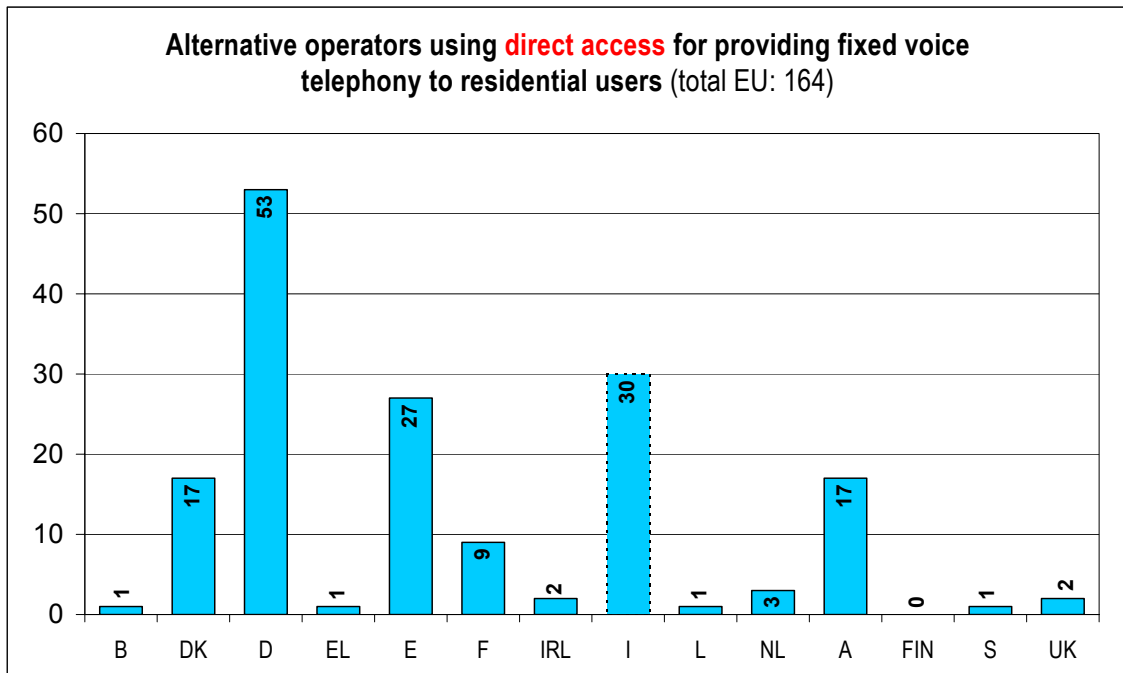
Chart 23



- Figure for Denmark should be considered as minimum.
- In Germany, carrier pre-selection for local calls is not available yet.
- In Greece, the carrier pre-selection for all types of calls is not available yet.
- Data for France refer to May 2002.

In the following chart, figures refer to all types of calls (local, long-distance and international).

Chart 24



- Figure for Denmark should be considered as minimum.
- Data for France refer to May 2002.
- Figure for Italy refers to the number of operators that signed a ULL contract with the incumbent, but not all of them are so far operational.
- Figure for the Netherlands refer to local call; data for long-distance/international call is 2.

3 PUBLIC NETWORK INTERCONNECTION AND INTERCONNECTION CHARGES

3.1. FIXED-TO-FIXED INTERCONNECTION CHARGES

The following charts show the per-minute interconnection charges for call termination on the incumbent's fixed network, based on the first three-minute call at peak rate.

The charts show the absolute value of the interconnection charges (in €-cents) as of 1 August 2002, in comparison to the value as at August 2001.

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

Interconnection charges for Spain refers to a standard single transit, but a different charge is applied in Barcelona and Madrid (1,05 eurocents/minute)

In the case of France, in order to maintain consistency across Member States, the per minute charge indicated does not include the per minute charge related to the cost of the 2 Mbit/s port, which, however, according to ART, provides a better picture of the cost borne by the interconnecting party. By taking this additional charge into account, per minute charges would be €-cent 0.62, €-cent 1.26 and €-cent 1.76 respectively at local, single transit and double transit interconnection levels.

Charges for Netherlands apply from 1 Sept. 2002.

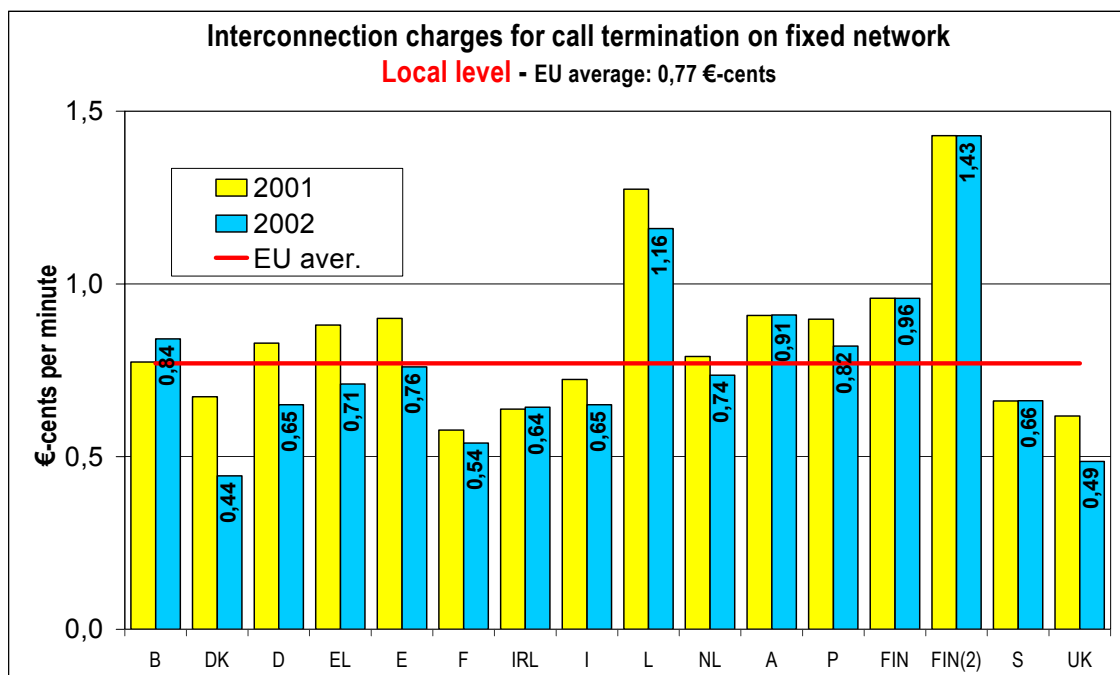
Figures for Austria are valid until 30.06.2002.

In Finland there are about 50 SMP operators who apply different interconnection charges. The charts refer to charges applied by the two major operators Elisa (FIN) and Sonera (FIN2).

Charge for Germany for single transit level is not comparable to last year, since the Regio50 and Regio200 zone rates have been unified in a unique single transit charge.

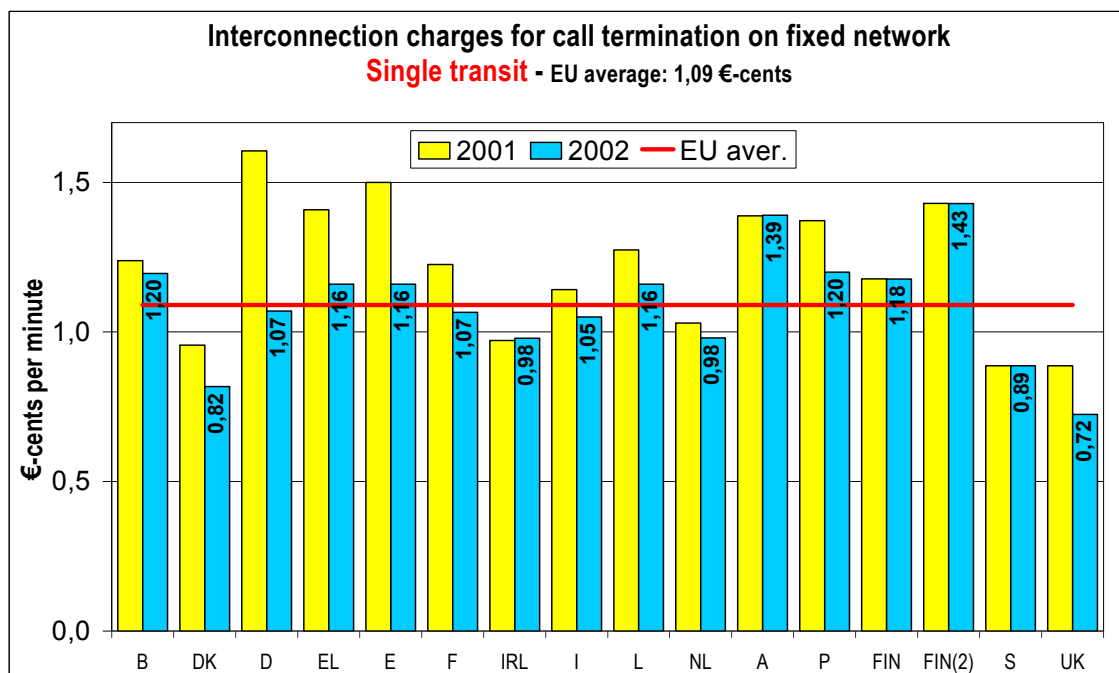
The EU average is a simple, rather than a weighted average.

Chart 25



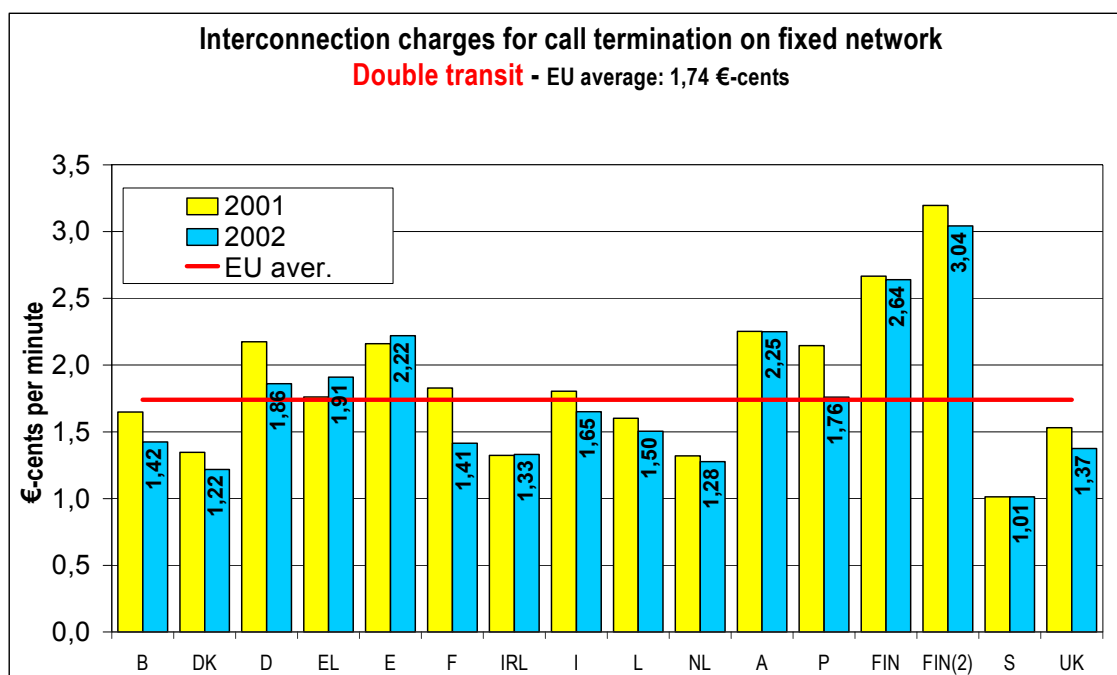
- In Luxembourg there is no distinction between local and long-distance domestic calls.

Chart 26



- Figure for Germany for the year 2001 is the simple average between the Regio50 and Regio200 zone rates.

Chart 27



- Data for the United Kingdom refers to a 100-200km connection length. For length less than 100 the interconnection charges at double level is 1,11184; and for more than 200km is 1,7832

3.2.LEASED LINE INTERCONNECTION CHARGES

This section shows the monthly rental and the one-off charges for short-distance leased lines (local ends, excluding VAT) up to 2 and 5 km provided by the incumbent operator to other interconnected operators. An estimate of the total average monthly rental cost (based on the total cost for the first year) is also presented.

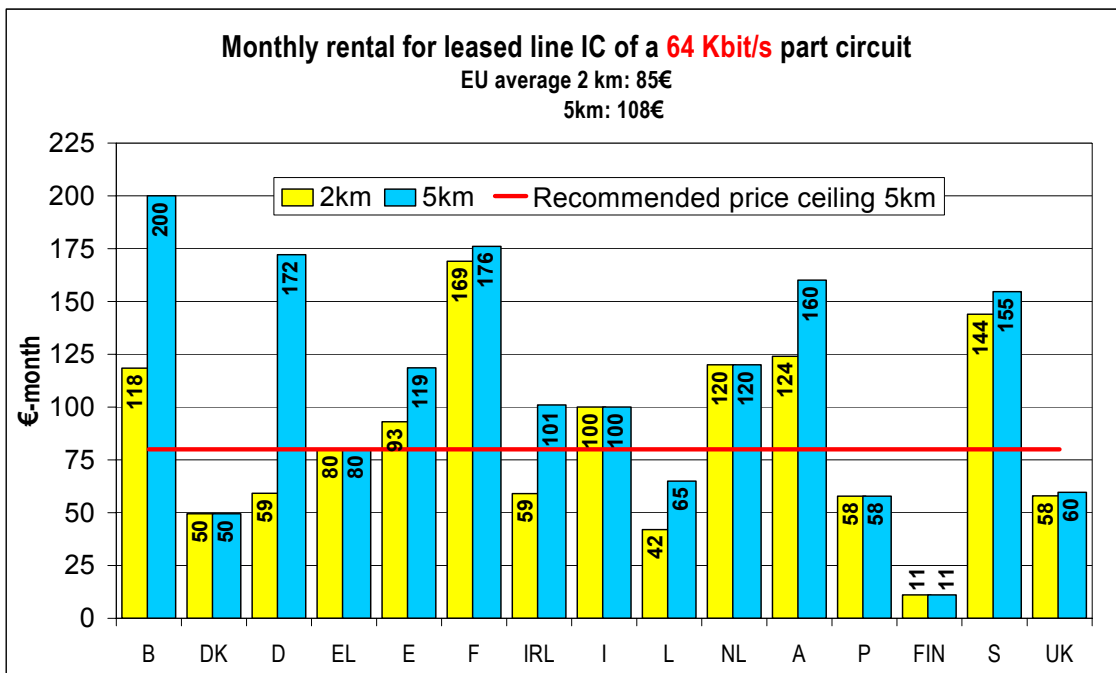
Deviations for the monthly rental from the “recommended price ceiling” set in Commission Recommendation 1999/3863 of 24 November 1999 are also shown. The recommended price ceilings are:

- € 80/month for a 64 Kbit/s leased line part circuit up to 5 km
- € 350/month for a 2 Mbit/s leased line part circuit up to 5 km;
- € 1 800/month for a 34 Mbit/s leased line part circuit up to 2 km;
- € 2 600/month for a 34 Mbit/s leased line part circuit up to 5 km.

These figures have been provided by the national regulatory authorities through the questionnaire for the 8th Implementation Report and the replies to the ONP COM02-18 Document. Figures indicate the position in August 2002.

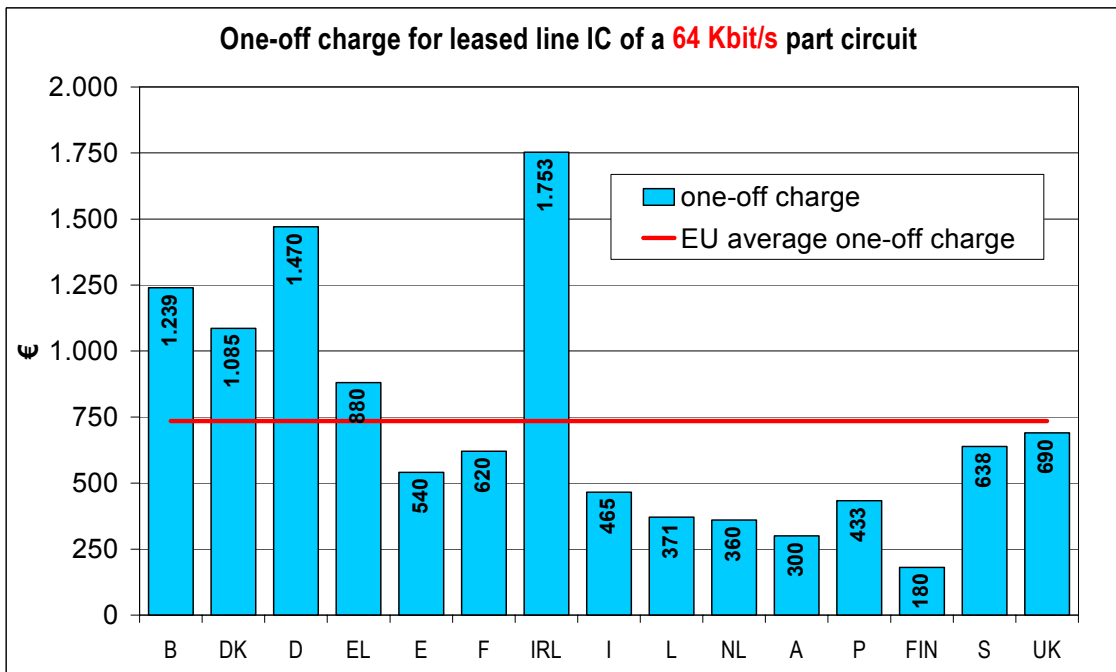
64 Kbit/s part circuit

Chart 28



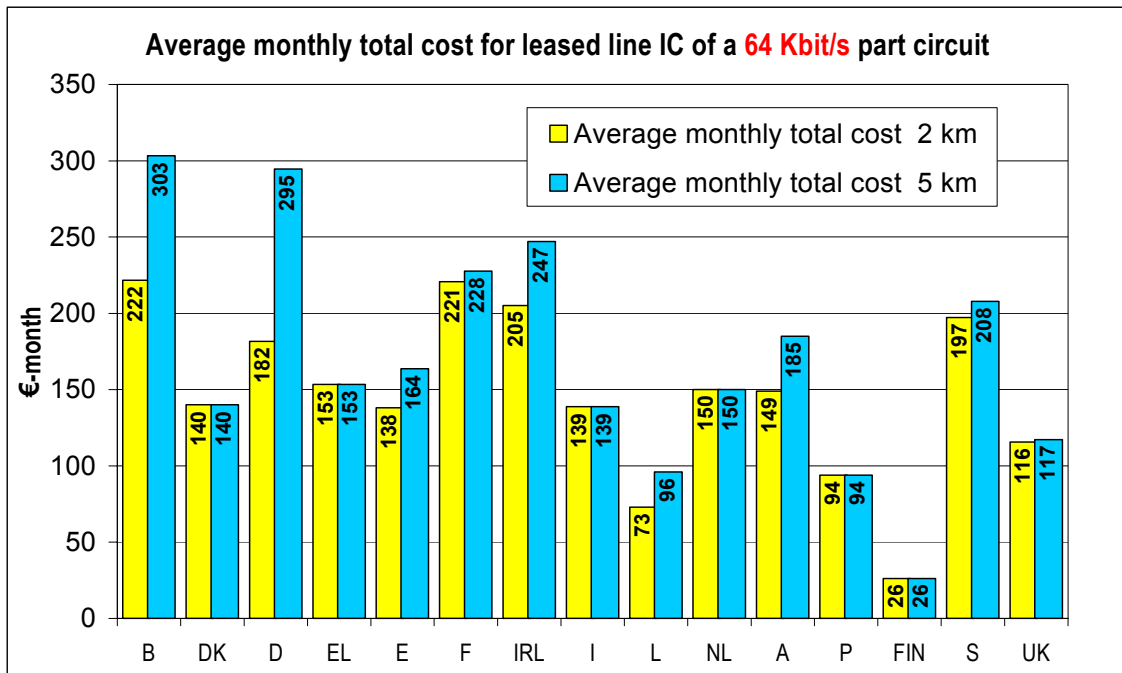
- Figure for Greece refer to August 2001.
- Figure for Denmark in force since October 2002.

Chart 29



- Figure for Denmark in force since October 2002.

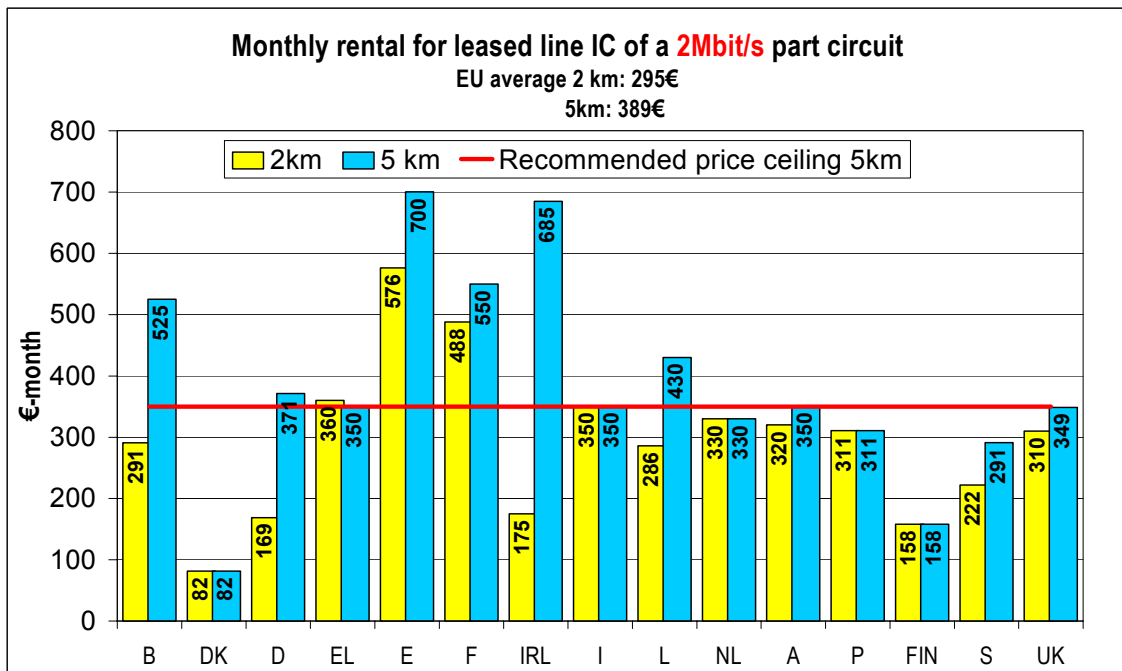
Chart 30



- Monthly rental for Greece refers to August 2001.
- Figure for Denmark in force since October 2002.

2 Mbit/s part circuit

Chart 31



- Figure for 2km for Greece refers to August 2001.
- Figure for Denmark in force since October 2002.

Chart 32

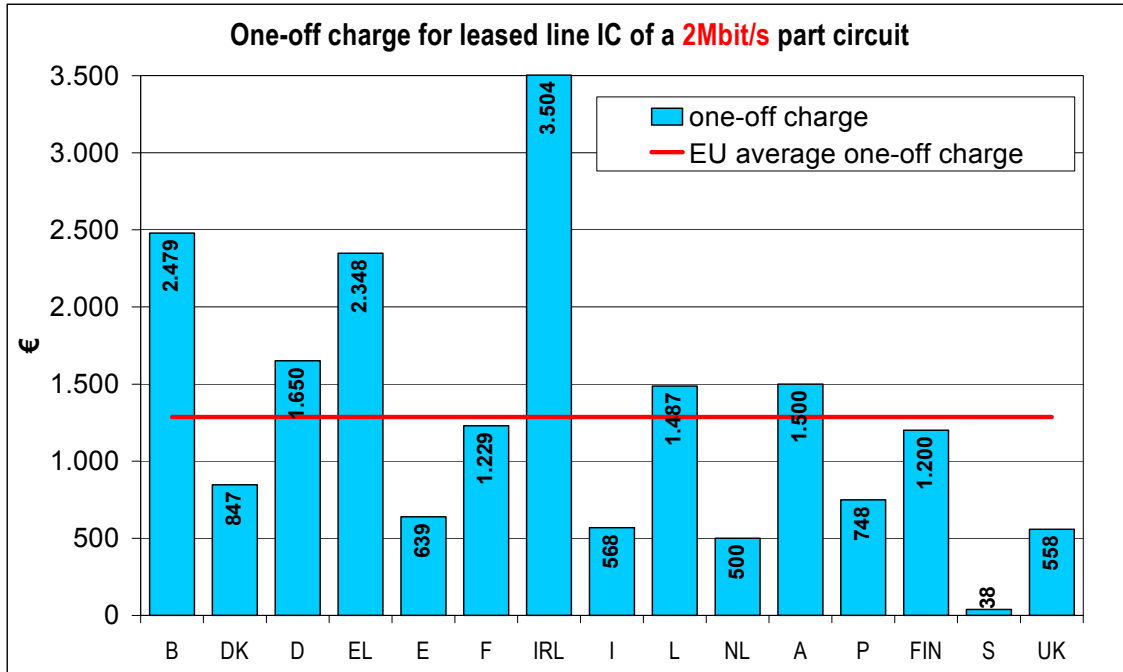
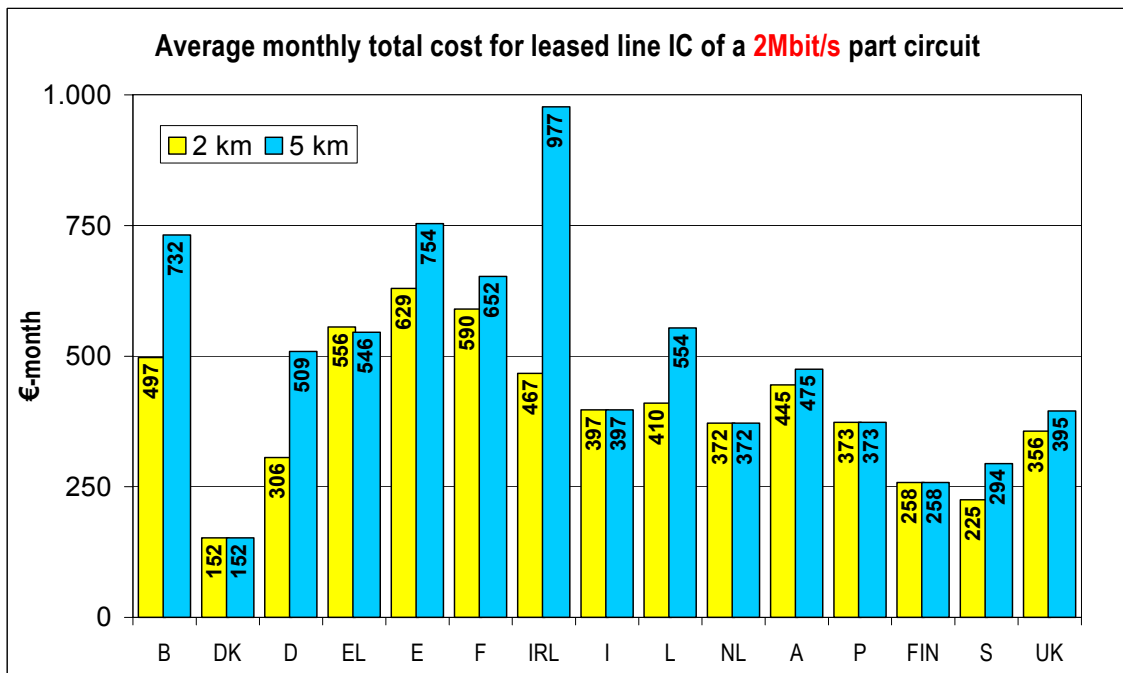


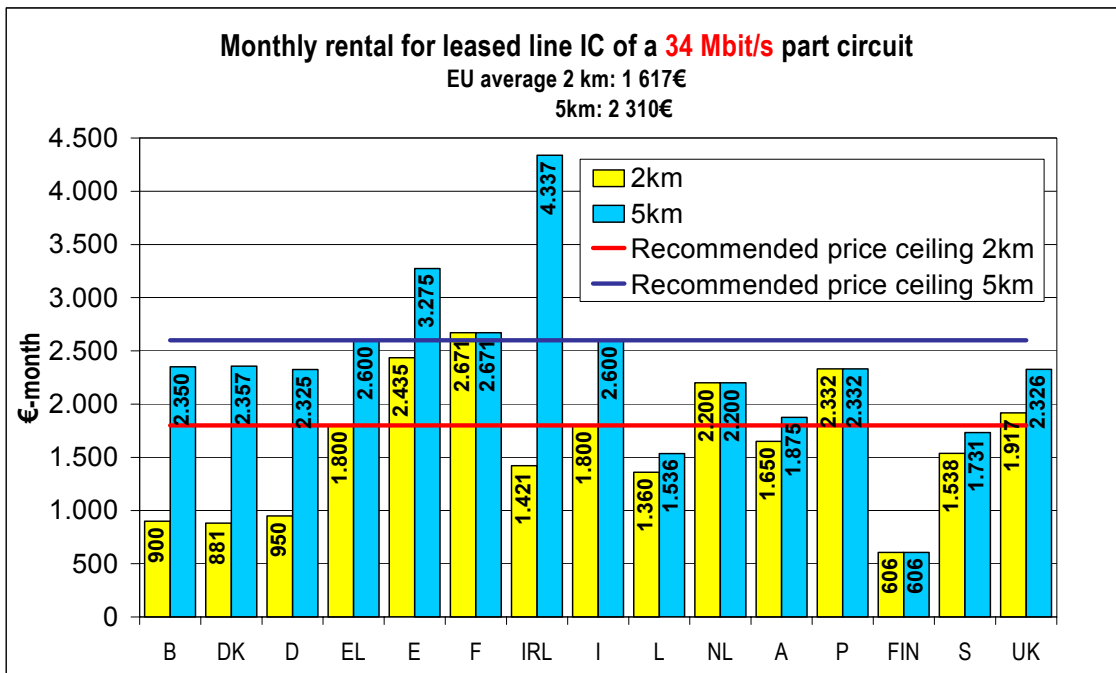
Chart 33



- Monthly rental for 2km for Greece refers to August 2001.

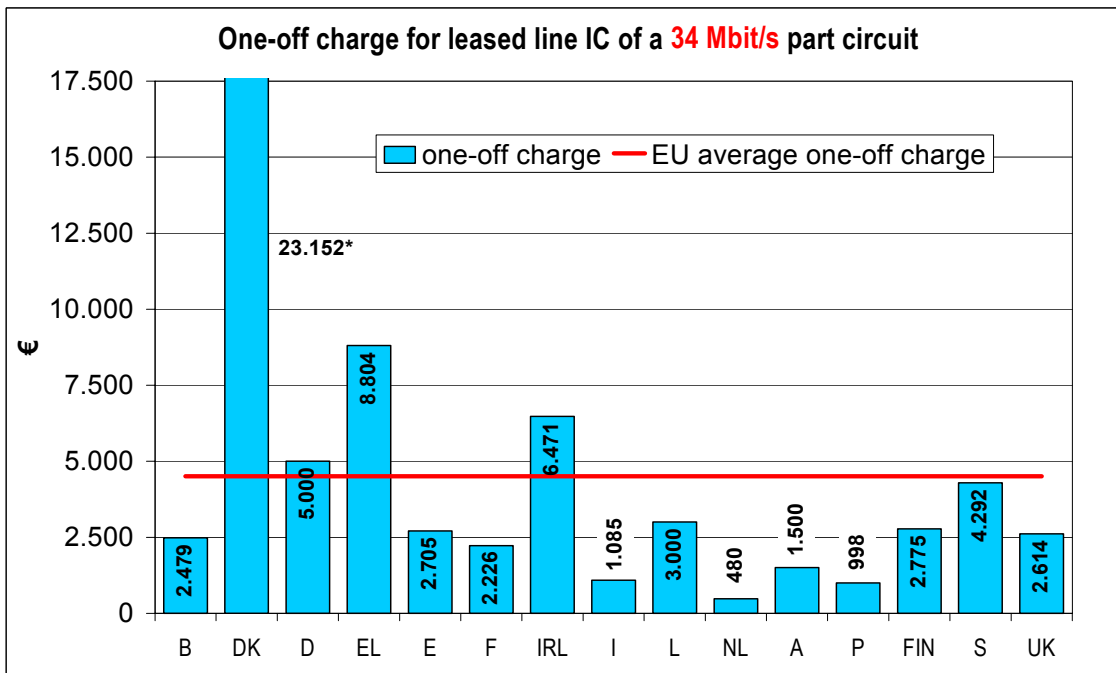
34 Mbit/s part circuit

Chart 34



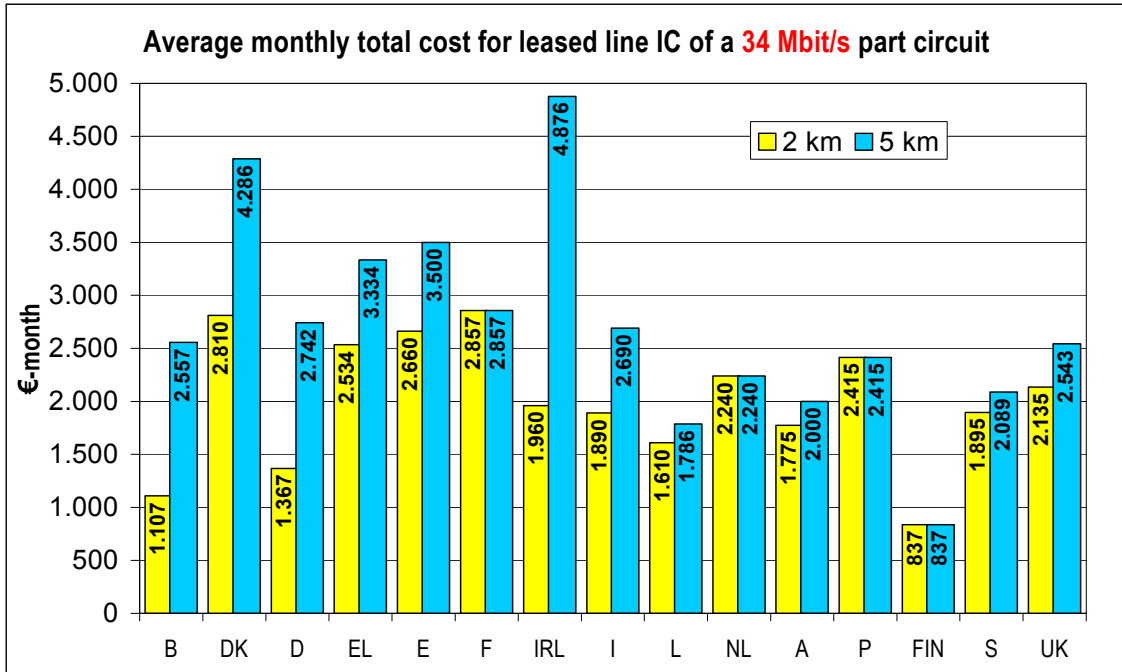
- Figure for Denmark in force since October 2002.
- Figure for Greece refers to 2001

Chart 35



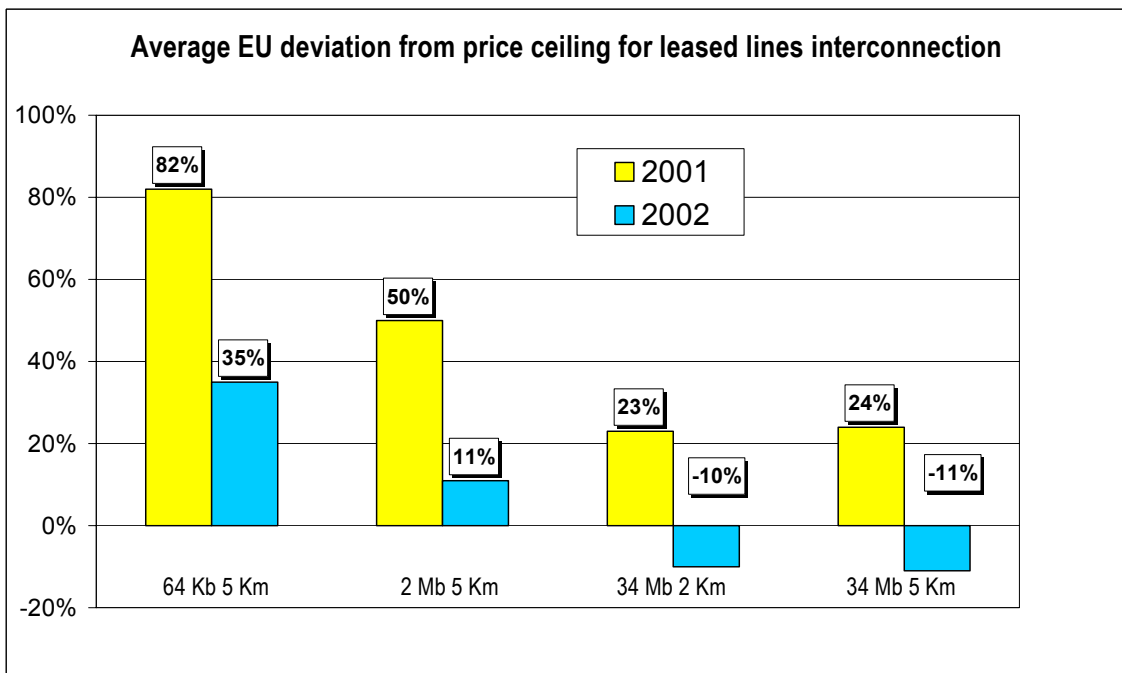
- * Value not to scale
- Figure for Denmark in force since October 2002. One-off charge in the chart refers to 2km. One-off charge for 5 km is 55 458€.

Chart 36



- Figure for Denmark in force since October 2002.

Chart 37



3.3.FIXED-TO-MOBILE INTERCONNECTION CHARGES

This section shows the per-minute interconnection charges for fixed call termination on the networks of mobile operators. Charges are for calls originating in the same countries, except for Finland, where charges for mobile termination of international fixed calls are considered.

The charges are based on the first three-minute call at peak rate, except for Finland, where the average peak/off-peak rate set by the NRA has been shown. Different charges may apply for call termination on other mobile networks.

Except for Germany, the figures have been collected by the NRA, and give the position in August 2002. Data for Germany are not publicly disclosed by the NRA and the figure shown in the chart was provided by Cullen International.

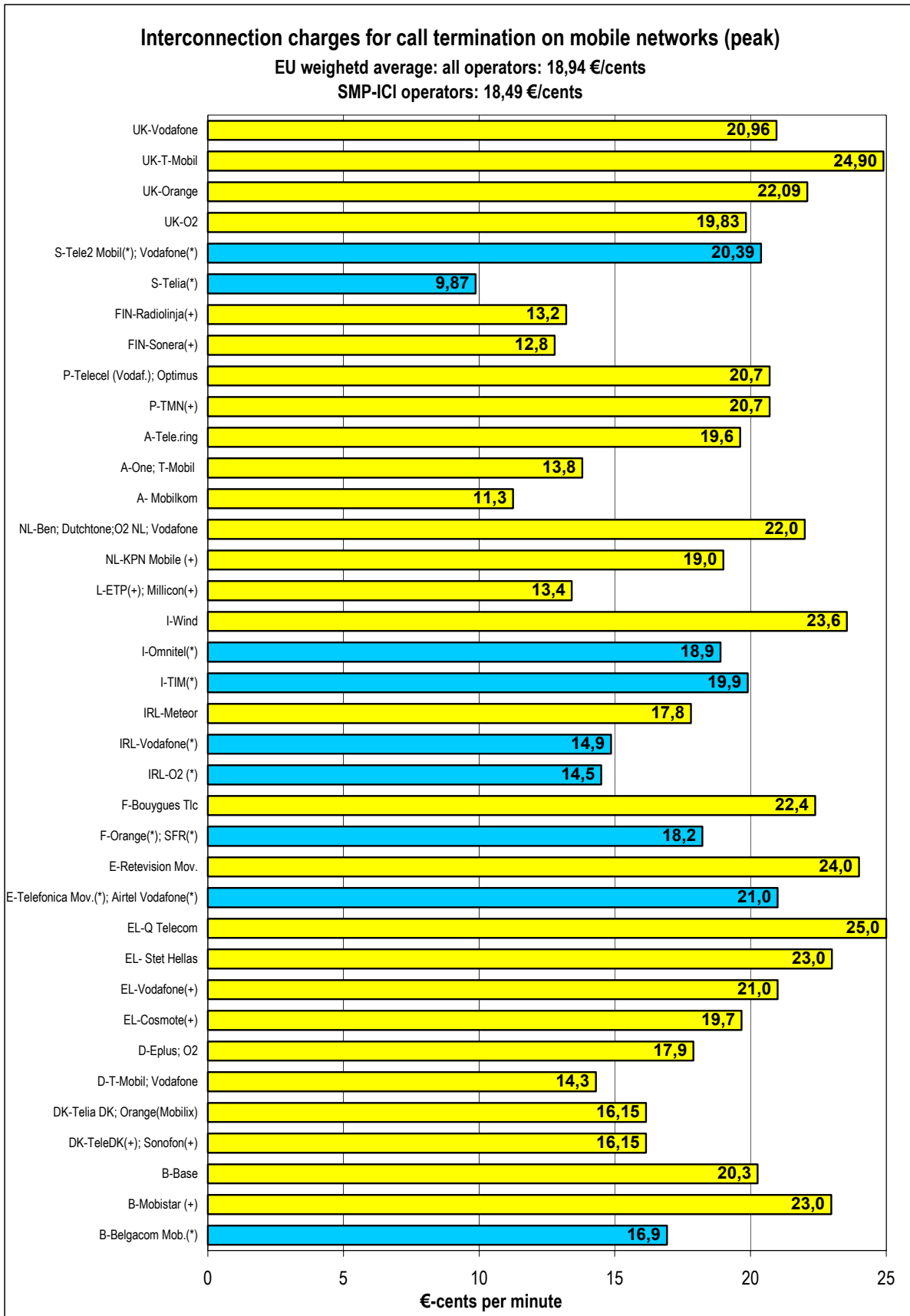
In the following chart figures are shown for a total of 12 operators with SMP in the national market for interconnection (Belgium, France, Ireland, Italy, Spain and Sweden). Figures for all the major mobile operators in each country are also shown (24 operators with SMP in the national mobile market). Denmark and Portugal applied to the non-SPM operators the same interconnection price as for the SMP operators in the mobile market.

In France, mobile-to-mobile interconnection charges are based on the "bill and keep" principle, so operators do not define termination charges.

Tariffs for Portugal are valid until 30.09.2002. Then, according to a NRA's decision they will be progressively reduced to 18.7 cents/min.

Data for Finland indicate the interconnection charges for an international fixed call to a mobile network (interconnection charges also apply to mobile-to-mobile calls). No mobile wholesale termination charges exist for call originating on national fixed network; instead, so-called "end-user" charges are levied.. The originating fixed operator charge a customer for a fixed network retail charge and for a mobile network retail charge (to be forward to the mobile operator). Both fixed and mobile operators determine the charges of their own segments. Example of fixed-to-mobile retail call charge (including VAT at peak rate) is 0,27€ for Sonera and 0,26€ for Radiolinja.

Chart 38

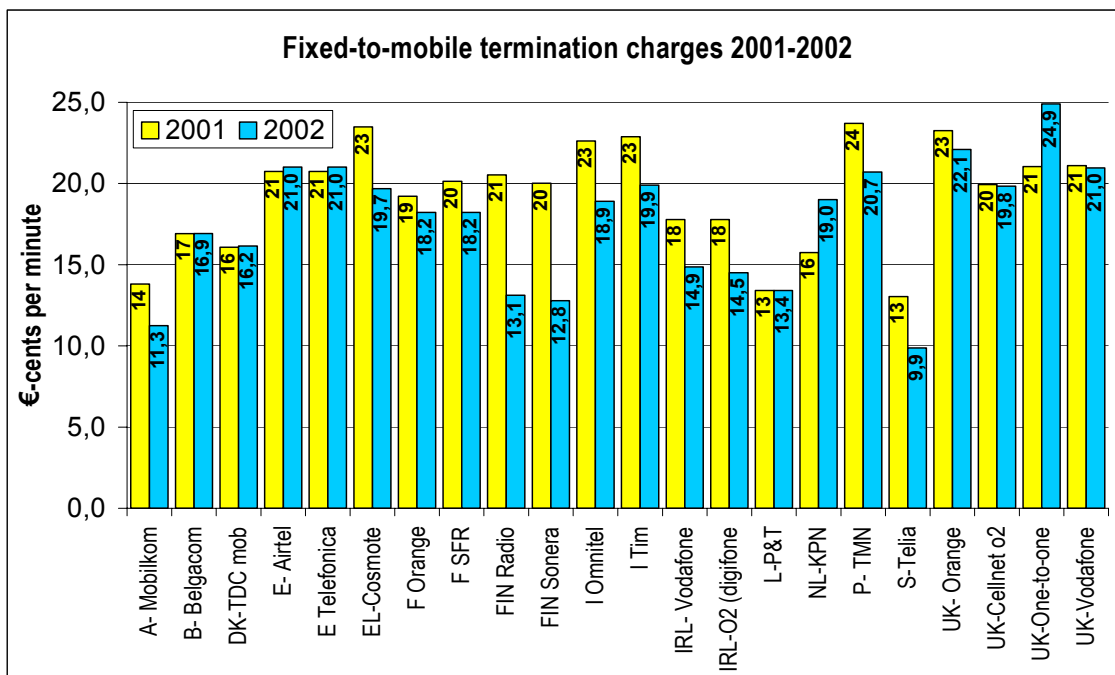


Legend:
 (*) SMP operators in the national interconnection market
 (+) SMP operators in the national mobile market

Charge for the SMP operator Telia in Sweden refers to a weighted peak/off-peak average rate, set out by the NRA. Charges for the other operators refer to a per minute peak rate. The SMP designation for Tele2 Mobil and Vodafone has not taken effect due to pending court proceedings.

The following chart shows the mobile termination charges for the year 2001 and 2002 for the main EU operators. EU weighted average trend is also shown.

Chart 39



4 MOBILE MARKET

4.1. MOBILE PENETRATION

The following charts estimate for each Member State the number of mobile subscribers and the penetration rate in 2002 for second generation mobile services (DCS-GSM). Growth in the penetration rate since August 2001 is also shown.

Subscriber figures are taken from FT Mobile Communications (August 2002) except for Germany, Austria and the Netherlands, where updated figures were provided by the respective NRAs. Data show the situation as at August 2002 and include both post-paid card and pre-paid subscribers.

EU average is a simple, rather than a weighted average.

The following chart shows the absolute number of mobile subscribers in each Member State (columns) and their penetration rate (dots), expressed in terms of % of total subscribers over population.

Figures for Italy, Spain, Sweden and Finland include analogue subscribers.

Chart 40

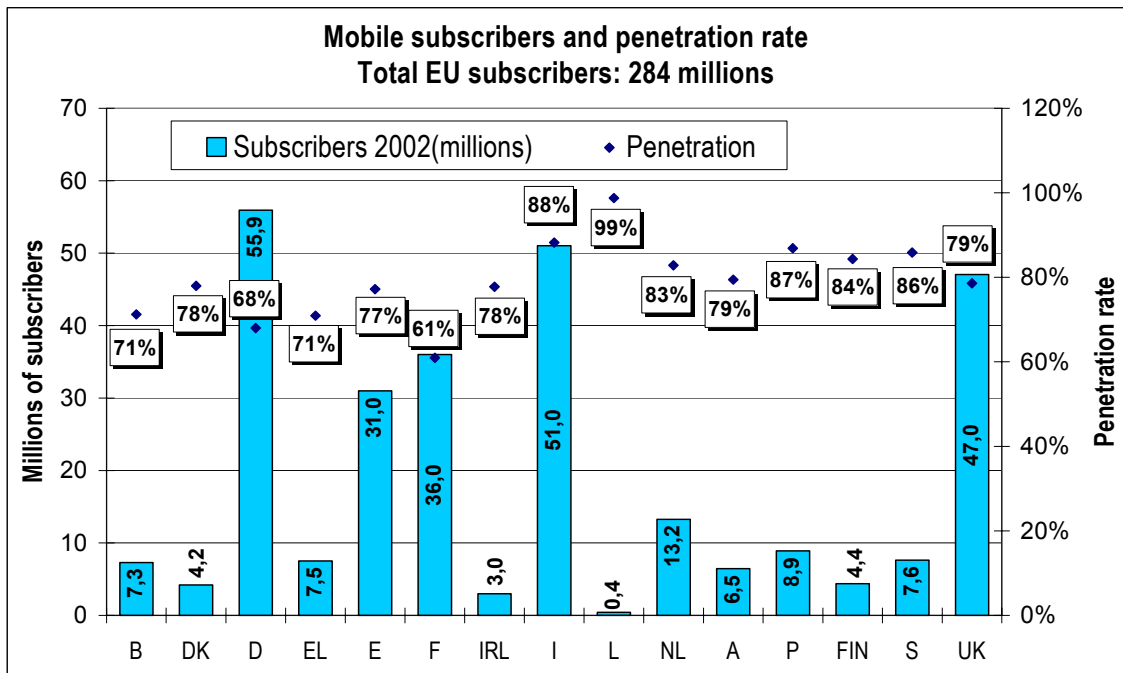
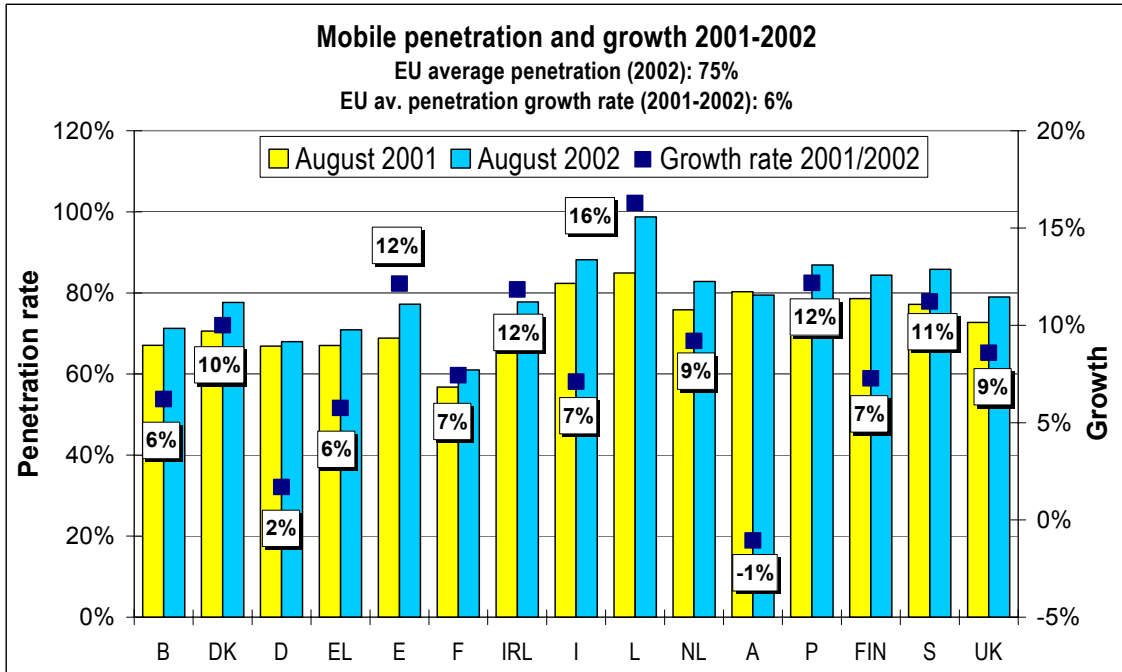


Chart 41



According to the Austrian NRA, the decline in the number of Austrian subscribers is due to a revision in the definition of active subscriber. Non-regular users are excluded from these figures.

Chart 42

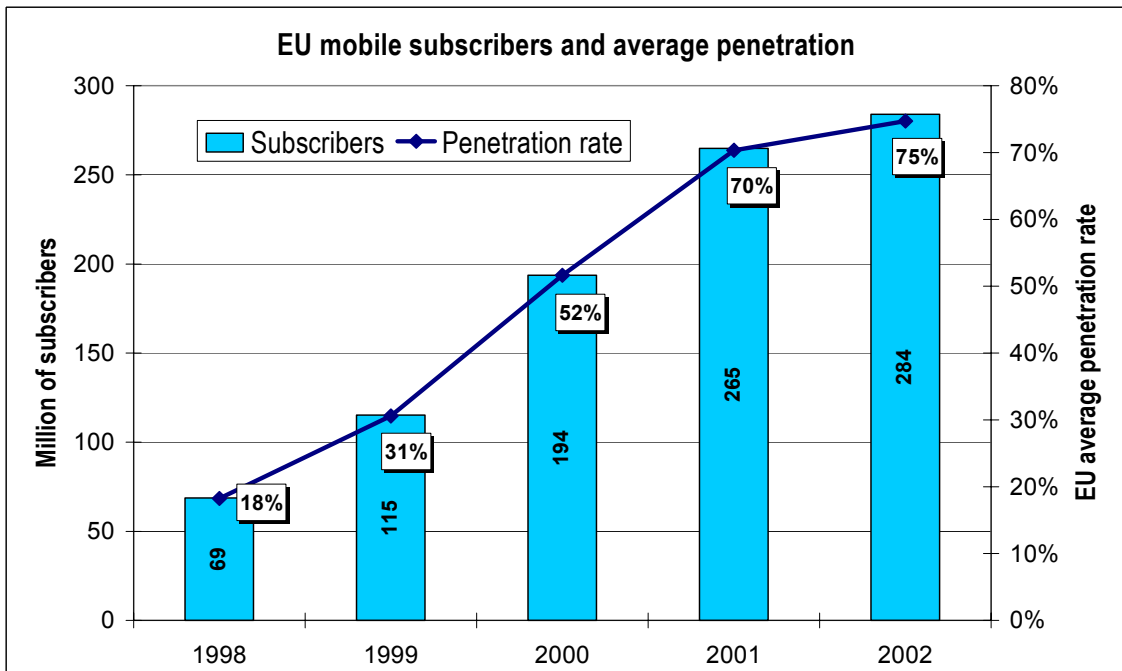
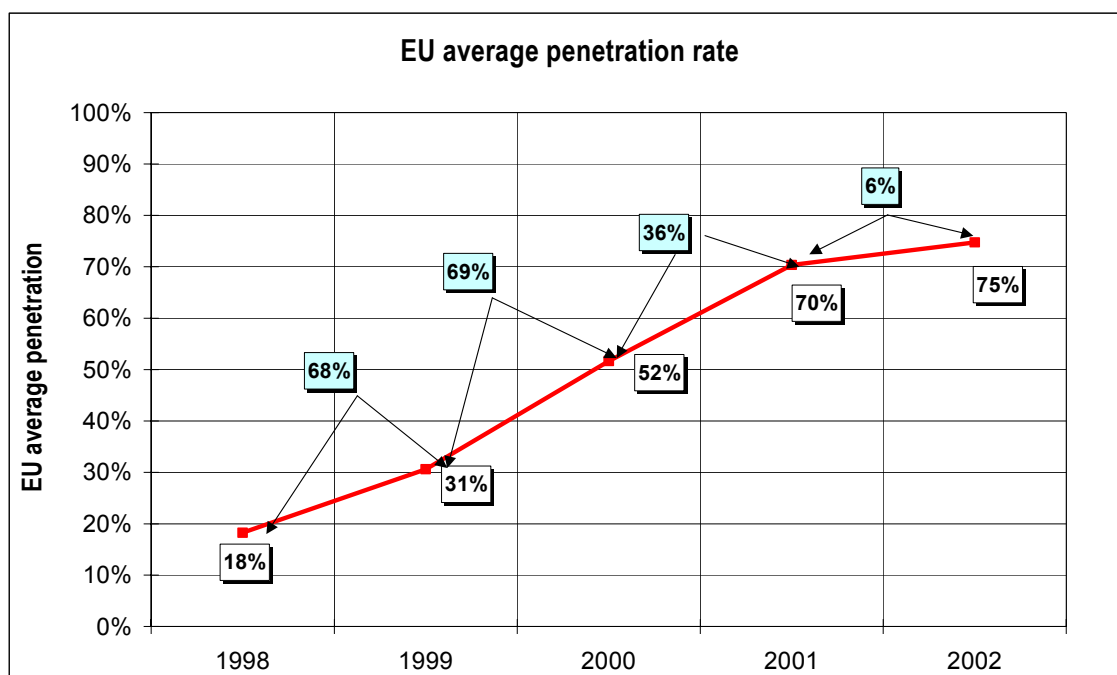


Chart 43



- EU average is a simple, rather than a weighted average.

4.2. PLAYERS IN THE MOBILE MARKET

This section shows the number of mobile licences granted in each Member State for the provision of analogue, GSM 900, DCS 1800 and UMTS services.

The data on the number of licensed operators have been provided by the national regulatory authorities and indicate the position in October 2002.

Chart 44 shows the number of operators licensed to provide digital mobile services (second-generation) rather than the number of licences issued in each country. 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).

Information on mobile service providers¹² has been included where available (without distinction between local and national coverage).

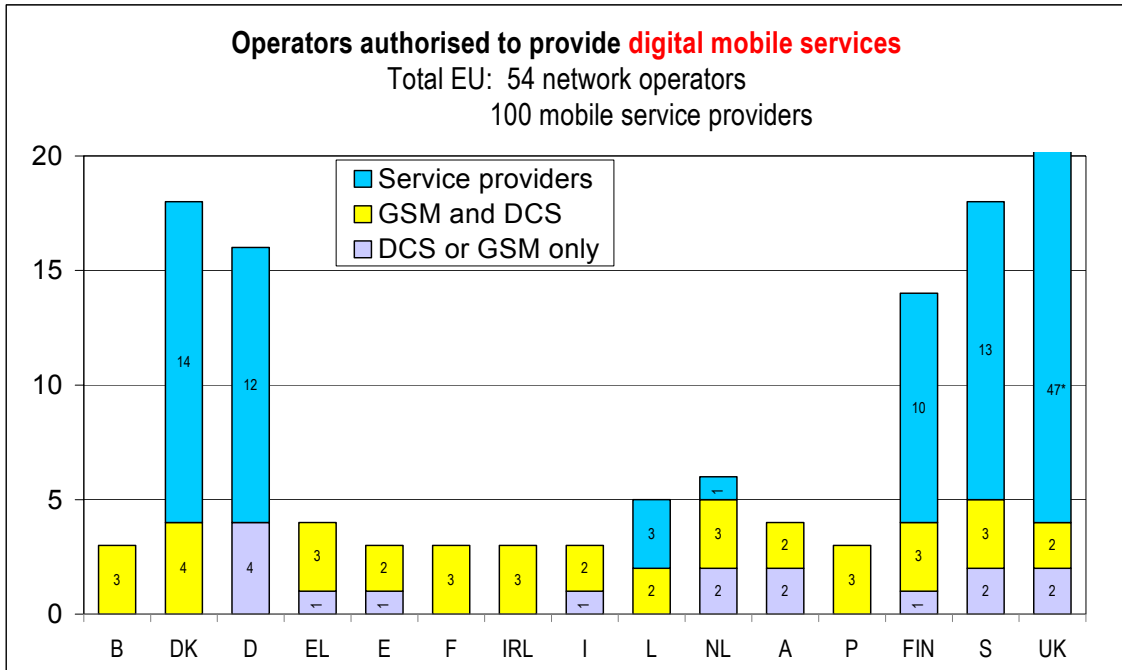
In Finland, 21 local telephone companies have been awarded licences to operate local DCS 1800 services, but spectrum has been allocated to two mobile operators, Radiolinja and Suomen 2G, in which those companies participate. Only 8 of these local companies are actually providing services. The figure does not include 1 local GSM operator belonging to the Finnet Group (Ålands) and 1 local GSM and 2 local DCS operators not belonging to the Finnet group. Only 3 mobile service providers have started commercial operations.

Figure for France does not include 2 analogue, 6 GSM local and 6 DCS local licences granted to the subsidiaries of the licensed mobile operators for the overseas departments¹³.

¹² Mobile service providers are defined as entities authorised to offer mobile service under their own brand name (dealing with marketing, billing, etc.), using a third party's mobile network.

Figures for Italy does not include the license of BLU since this has been withdrawn.

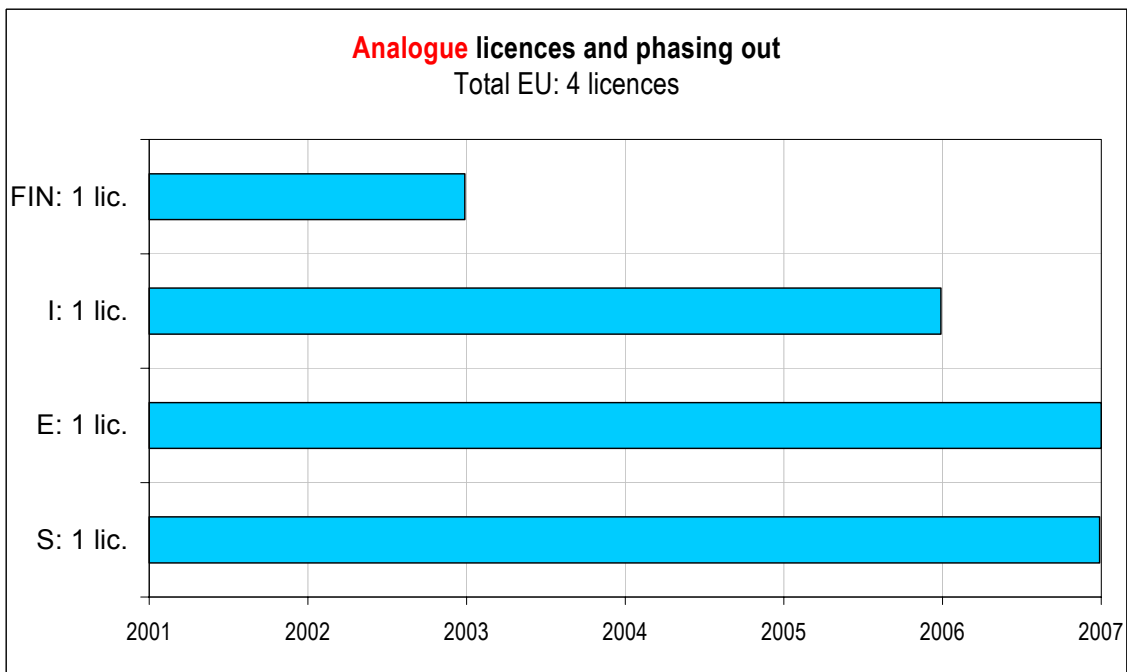
Chart 44



* Values not to scale

The following chart shows the number of analogue licences still active in Europe and the date on which the phasing-out of these networks is expected to be completed. All the analogue licences have been granted to the subsidiary of the incumbent fixed network operator.

Chart 45

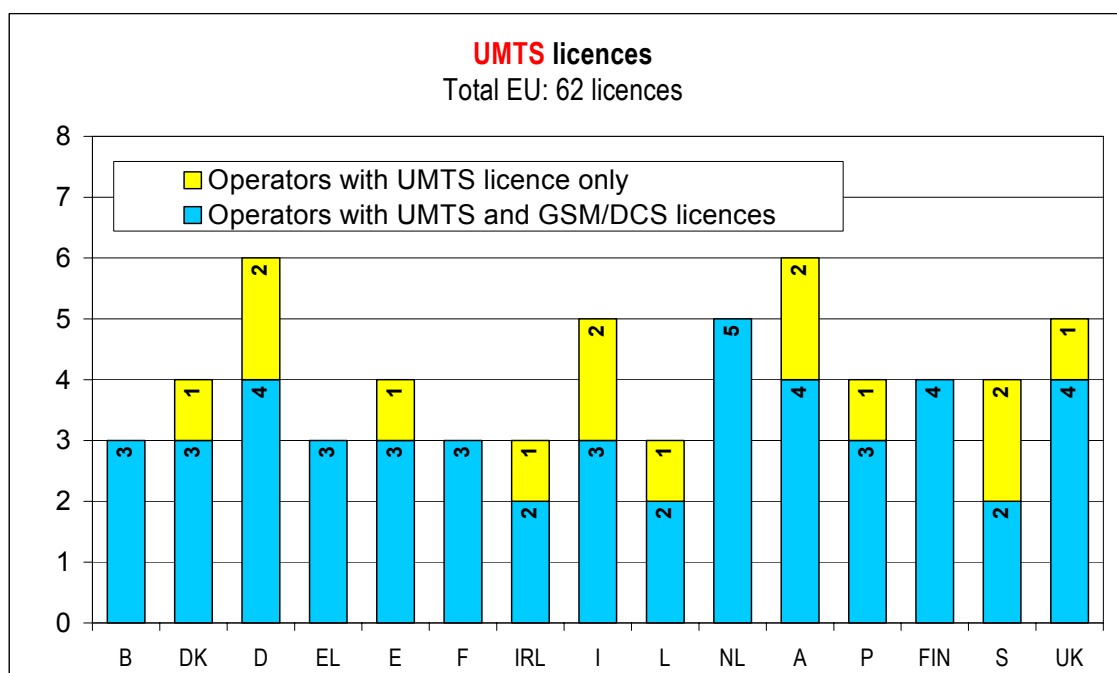


¹³ Département de la Réunion, Antilles Françaises, Guyane; Île de Saint Martin et Saint Barthélemy)

Chart 46 shows the number of UMTS licences granted in Europe. The great majority of licences have been granted to players still active in the second generation market, and 14 licences have been granted to new entrants.

Figure for Finland does not include a local service provider.

Chart 46



4.3. OPERATORS' MARKET SHARES

The following charts show the market shares, in terms of subscribers, of the main competitors in the second generation mobile market.

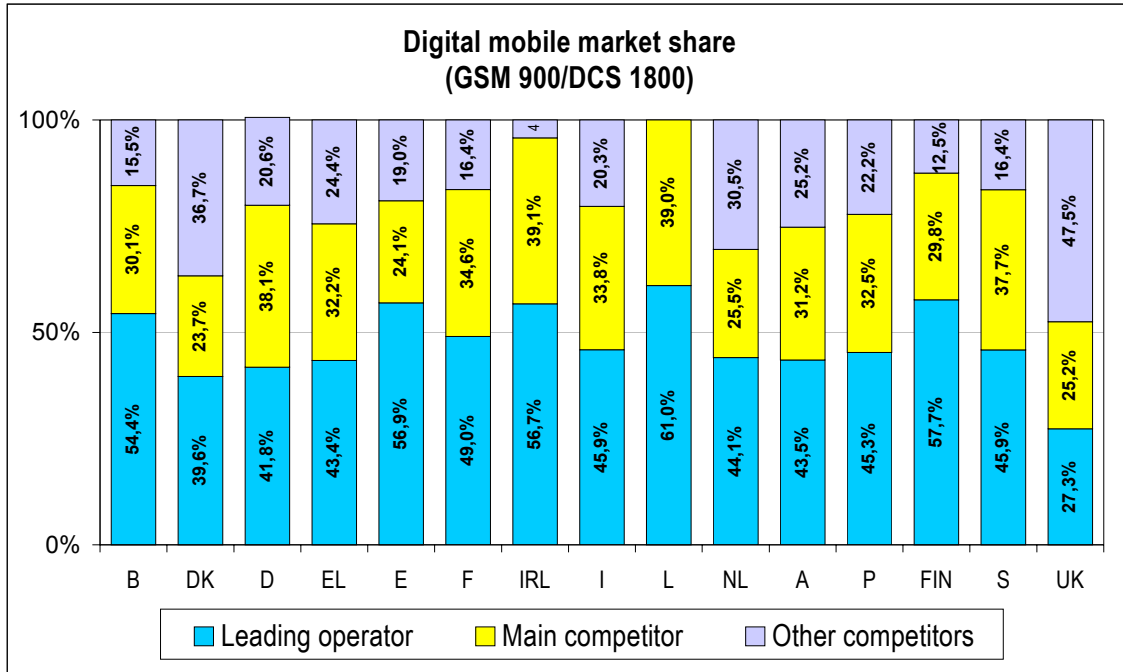
Since in four countries the incumbent's subsidiary is still providing the analogue service on the basis of a de jure or de facto monopoly, the operators' market shares have been calculated on two different relevant markets: the overall mobile market (including analogue, DCS 1800 and GSM 900 subscribers) and the digital market only (DCS 1800 and GSM 900).

Data concerning shares of the mobile market are based on estimates of the number of mobile subscribers, taken from FT Mobile Communications, and refer to August 2002. They have been compiled on the same basis in each country, and are therefore comparable. However, different figures might be obtained if the underlying raw data were collected/estimated on a different basis (number of subscribers, pre-paid card, minutes of conversation, etc.) or if a different method of calculation was used.

Apart from the United Kingdom, the leading operator is a subsidiary of the incumbent fixed network operator.

Chart 47 shows the shares of the leading operator, of the main competitor and of the other competitors on the digital mobile market only (100%).

Chart 47



The following chart shows the share of the overall mobile market held by the mobile subsidiary of the incumbent fixed operator. Where the incumbent still operates the analogue service, the shares of the overall mobile market of their analogue and digital services are indicated separately.

Chart 48

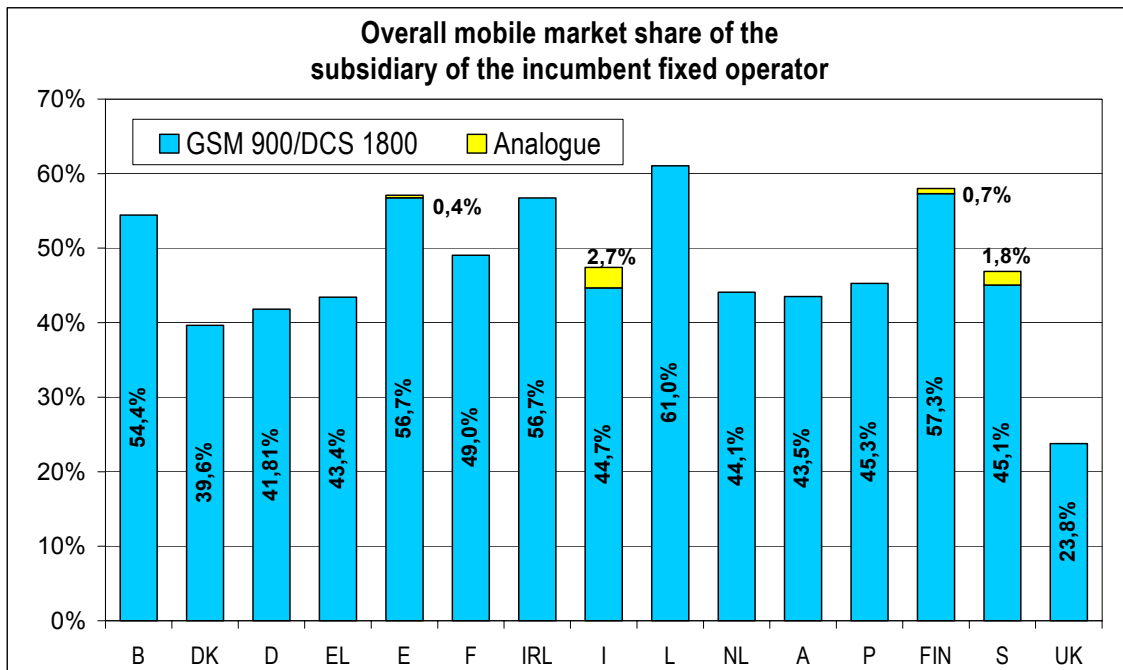
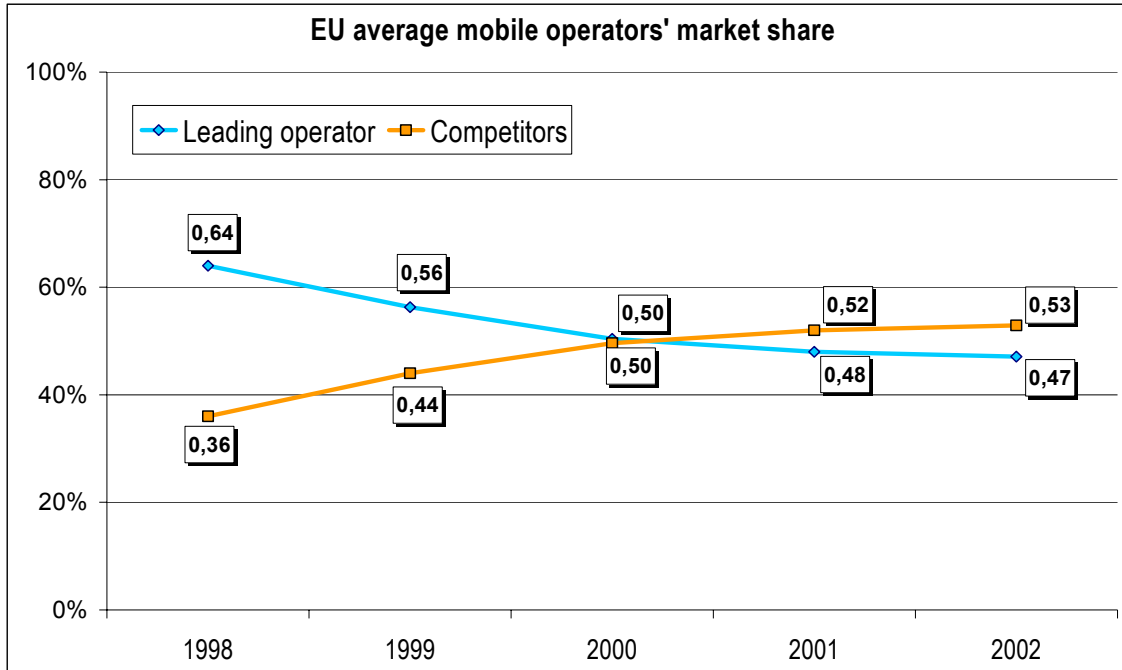


Chart 49



4.4.MOBILE BASKET

The analysis of national (as opposed to roaming) mobile services is based on the OECD baskets for GSM/DCS services, as provided by Total Research Teligen in the August 2002 T-Basket. Due to significant changes in usage patterns the OECD baskets have been redefined with effect from August 2002¹⁴.

Since the results from the 'new' baskets are not finalised yet, the 'old' OECD baskets will be used in this section.¹⁵

The 'old' OECD baskets cover calls to local (70% of national calls) and distant (20% of national calls) fixed line phones, mobile phones in the same network (10% of national calls), and international calls.

All packages analysed are post-paid packages. The analysis is based on packages from the leading¹⁶ operator in each country. Other providers may offer lower prices.

The low intensity basket will be typical for personal usage, with a weight towards afternoon and evening, and a lower number of calls (total 202 calls per year, of these 2 are international).

The high intensity basket is more typical for professional usage, with a heavy weight towards business hours, and far more calls than the low intensity basket (total 1272 calls per year, of these 72 are international).

The baskets cover all relevant charges, i.e. 1/5 of the activation charge, annual rental charges, and call charges as defined above.

¹⁴ The 'new' baskets are not compatible with the "old" ones, in that they contain an SMS element, they include calls to several mobile networks, and they do not cover international calls. The new baskets will cover more than one operator per country, and a range of packages per operator. This means that the results from the new baskets will come out very different from the results obtained in previous years.

¹⁵ A full description of the methodology can be found in the document 'OECD Telecommunications Basket definitions', June 2000, available at <http://www.oecd.org/pdf/M00005000/M00005340.pdf>

¹⁶ In terms of number of subscribers.

The packages from each operator have been selected as appropriate for each of the two baskets, based on an analysis of the range of packages offered.

Several packages offer an amount of free calls, included in the package price. These free calls are subtracted from the usage charges.

Chart 50

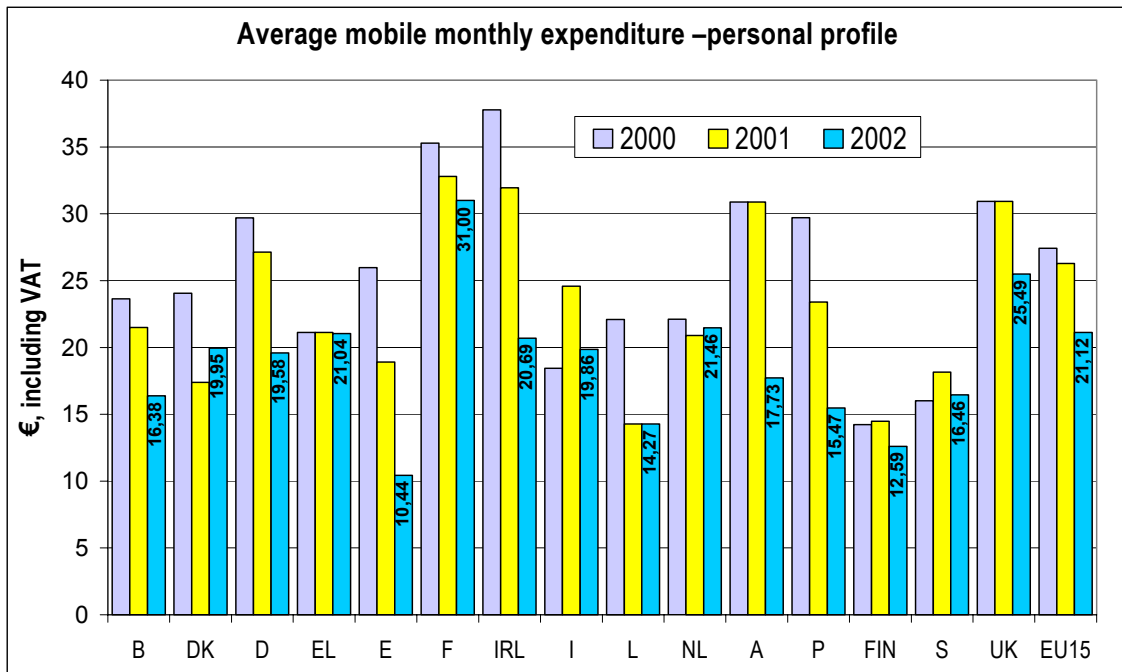


Chart 51

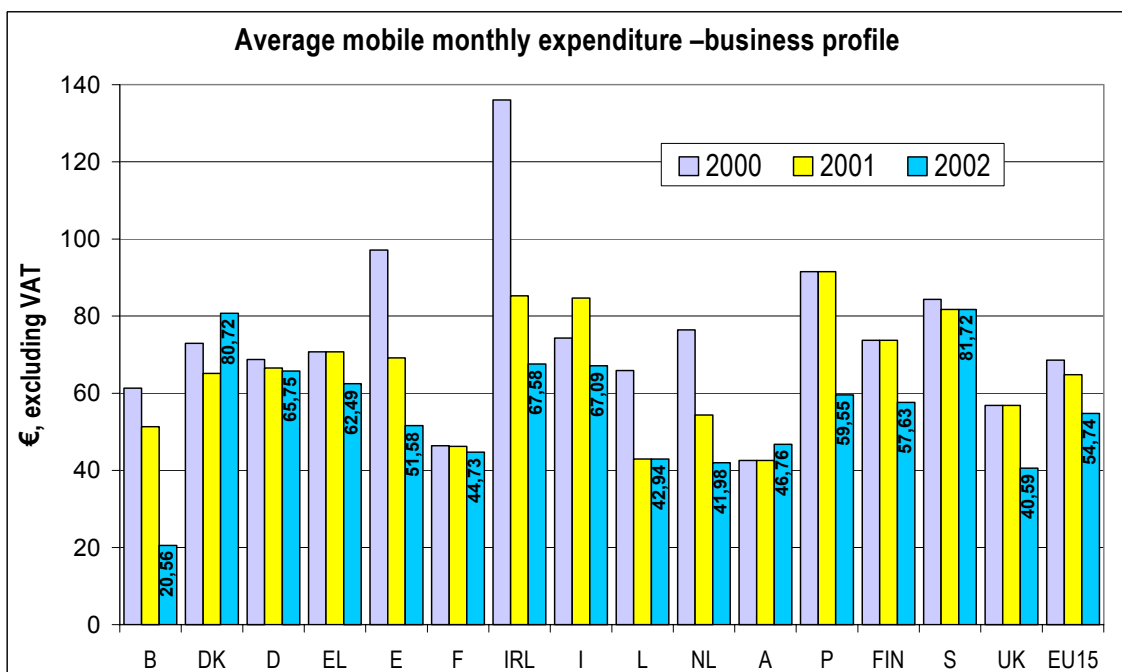


Chart 52

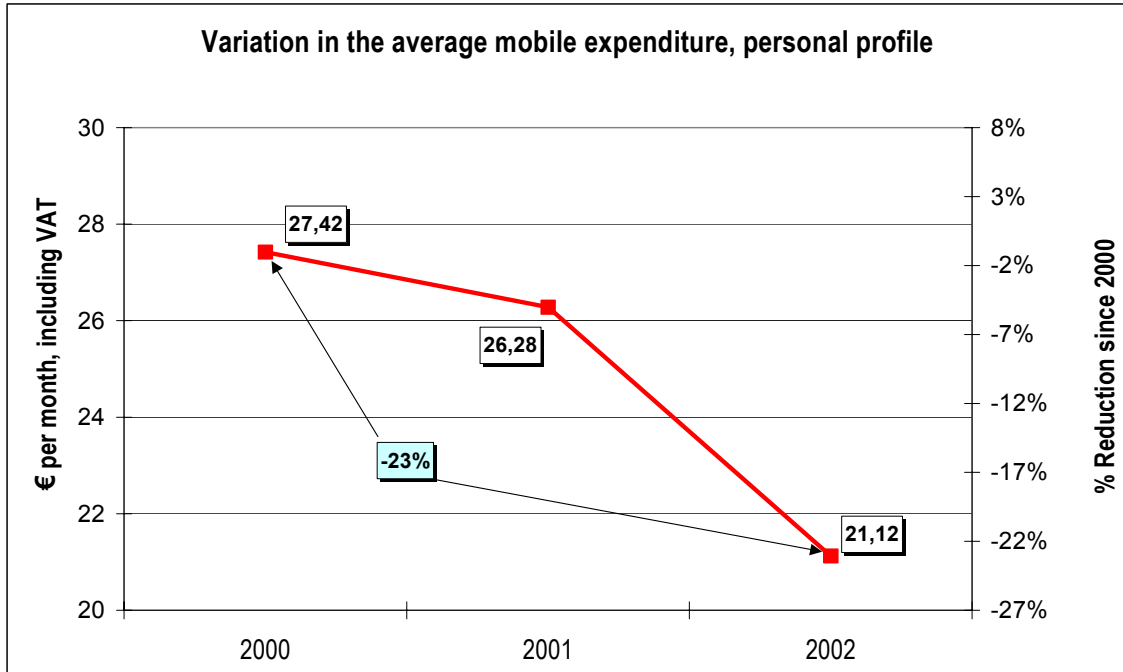
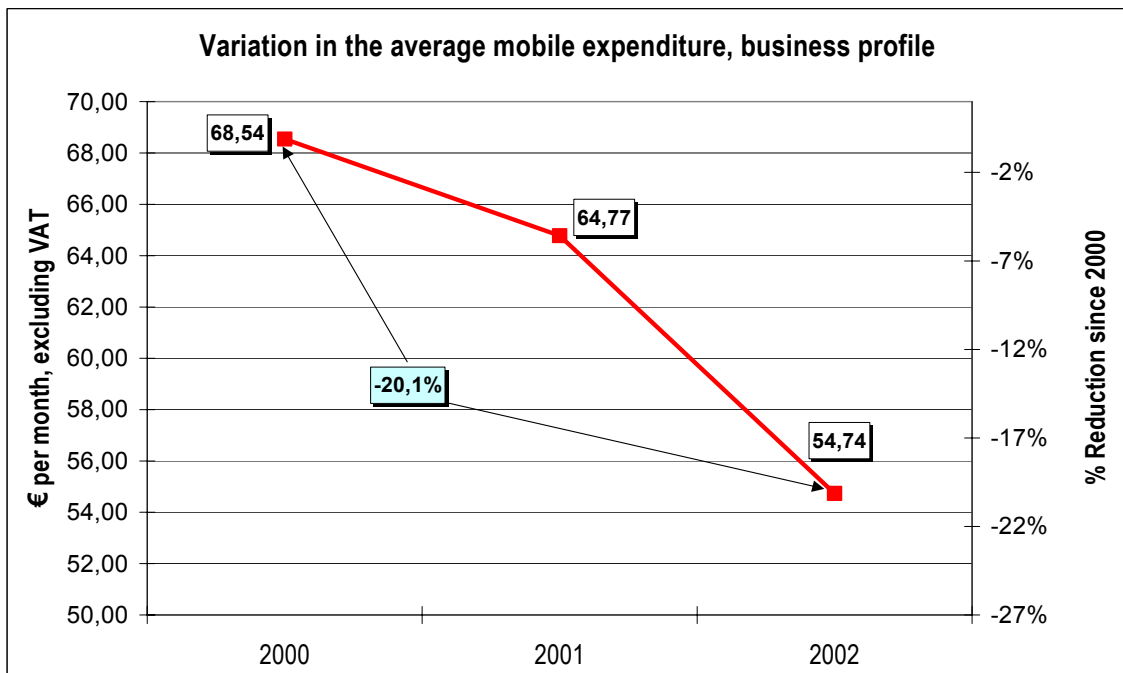


Chart 53



5 LOCAL ACCESS AND PRICING

5.1. BROADBAND ACCESS

This section provides data on the number and type of 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), satellite and cable modems.

Information have been collected from the national regulatory authorities through the ONP COM02-18 questionnaire on data for local broadband access. Given the rapid developments in this sector, it has been agreed with NRAs to update the ONP questionnaire data on a regular basis in January, July and October. Unless otherwise stated data below refer to the situation as at 1st October 2002.

For the collection of data the following concepts have been used:

- “New entrants” refers not only to alternative telecommunications operators, but also include the internet service providers (ISPs);
- In the case of full unbundling, the copper pair is rented to a third party for its exclusive use;
- As fully unbundled lines (ULL) supplied by incumbent to new entrants could in principle be used for services other than broadband the total number of ULL for access to internet will be lower than the total number of ULL;
- In the case of shared access, the incumbent continues to provide telephony service, while the new entrant deliver high speed data services over the same local loop;
- Bitstream access refers to the situation where the incumbent installs a high speed access link to the customer premises (e.g. by installing its preferred ADSL equipment and configuration in its local access network) and then makes this link available to third parties, to enable them to provide high speed services to customers. The incumbent may also provide transmission services to its competitors, to carry traffic to a “higher” level in the network hierarchy where new entrants may already have a broadband point of presence;
- 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;
- Retail broadband access refers to the access provided to the end users;
- Incumbents’ DSL lines refers to the lines provided to end users by the incumbent, its subsidiaries or partners;
- Other means of accessing the internet indicates connections by means of satellite, fibre optic, powerline communications, etc;

5.1.1. Wholesale access

This section shows the availability of wholesale access supplied by incumbents to new entrants. Separate figures are provided for full unbundled lines, shared access and bitstream access (wholesale DSL lines).

Table 4 Number of agreements for full ULL, shared access, bitstream access and resale.

	N. of agreements on fully unbundled lines	N. of agreements on shared lines	N. of agreements Wholesale DSL lines supplied. Bitstream access	N. agreements Wholesale DSL lines supplied. Simple resale
B	7	4	4	12
DK	16	5	5	1
D	91	3	2	52
EL	2	0	0	0
E	6	6	38	n.a.
F	9	9	4	5
IRL	1	1	0	0
I	31	2	50	n.a.
L	n.a.	n.a.	n.a.	n.a.
NL	10	10	n.a.	n.a.
A	12	0	24	0
P	4	n.a.	4	n.a.
FIN	180	80	60	35
S	33	33	4	5
UK	53	5	309	0
Tot. EU	455	158	504	110

Chart 54

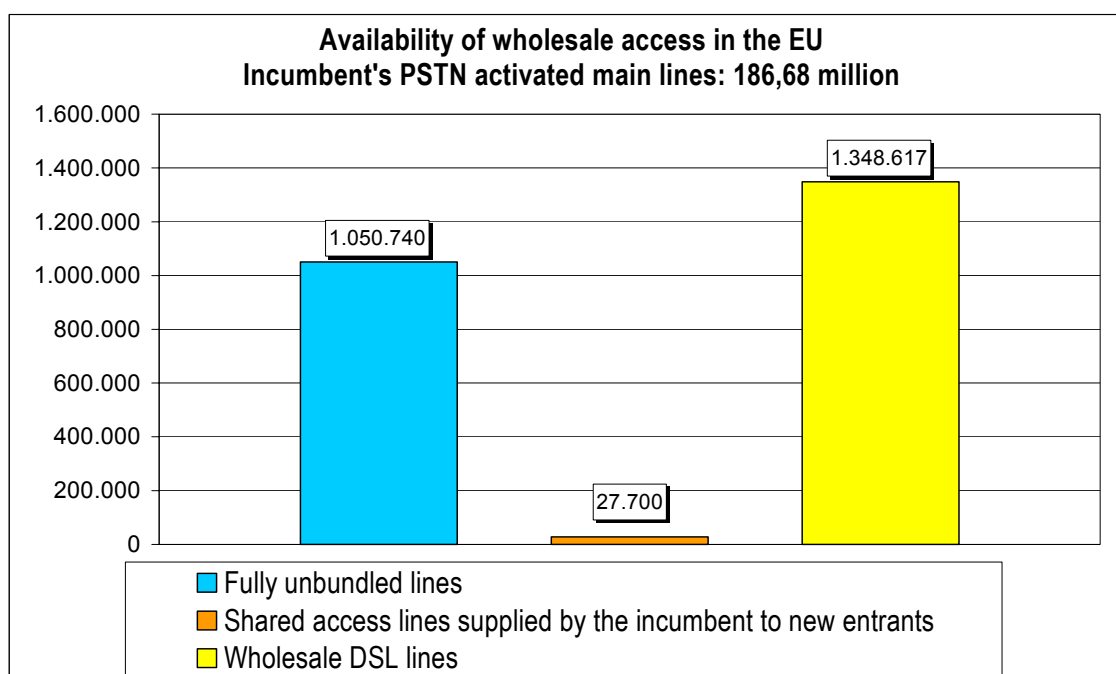


Chart 55

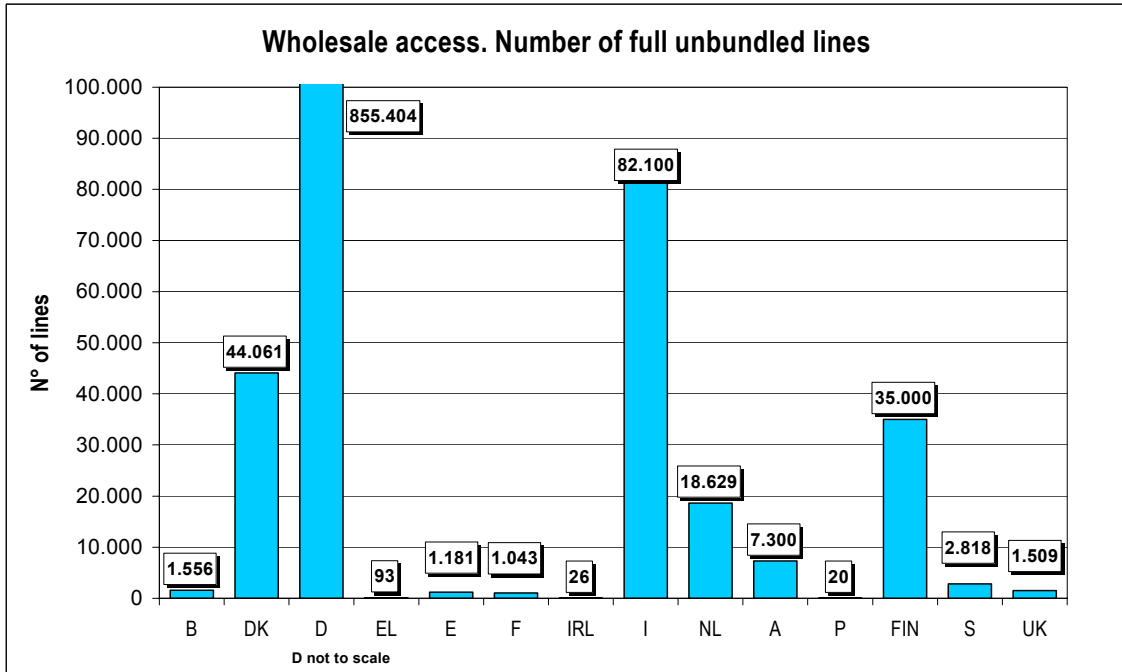


Chart 56

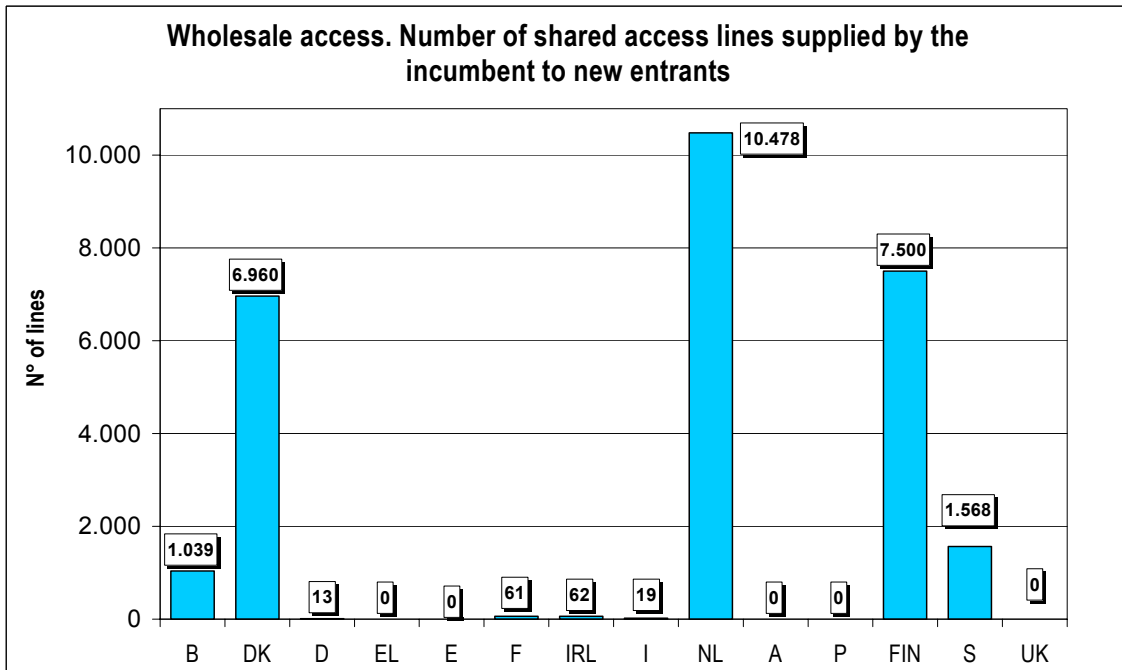
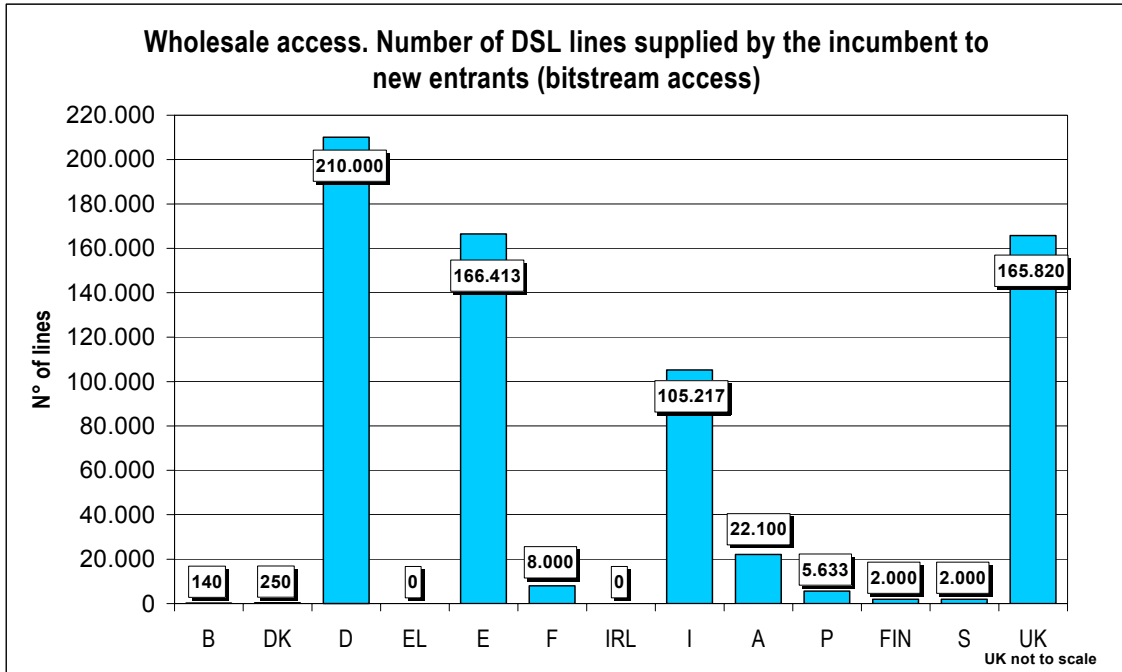


Chart 57



5.1.2. Retail broadband access to internet

This section show the availability of broadband access to internet for end-users provided by incumbents (its subsidiary or partners) and by new entrants (alternative telecom operators or Internet Service Providers).

Internet broadband access can be provided through different means: DSL lines, wireless local loop (WLL), cable TV access (cable modem), dedicated leased lines and other access (like satellite, fibre optic powerline communications, etc..)

New entrants' DSL lines can be provided to end users by means of full unbundled, shared access, bitstream access or resale.

Chart 58 shows the total number of broadband access to internet for each Member States provided by both incumbents and new entrants and including all means of broadband connections.

Chart 58

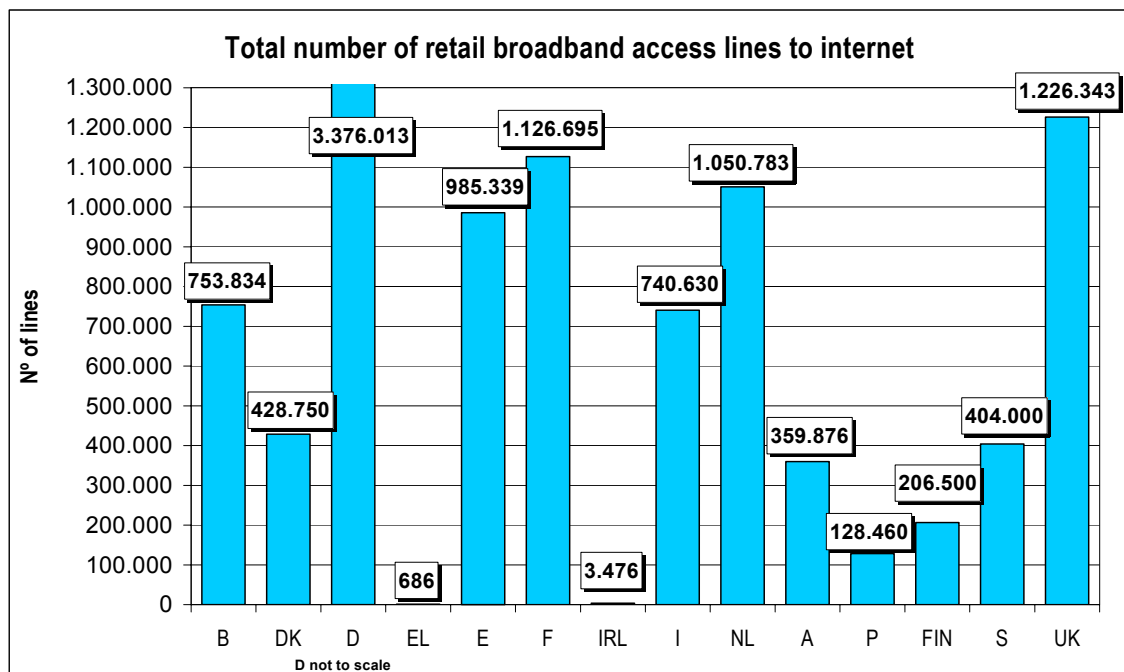


Chart 59

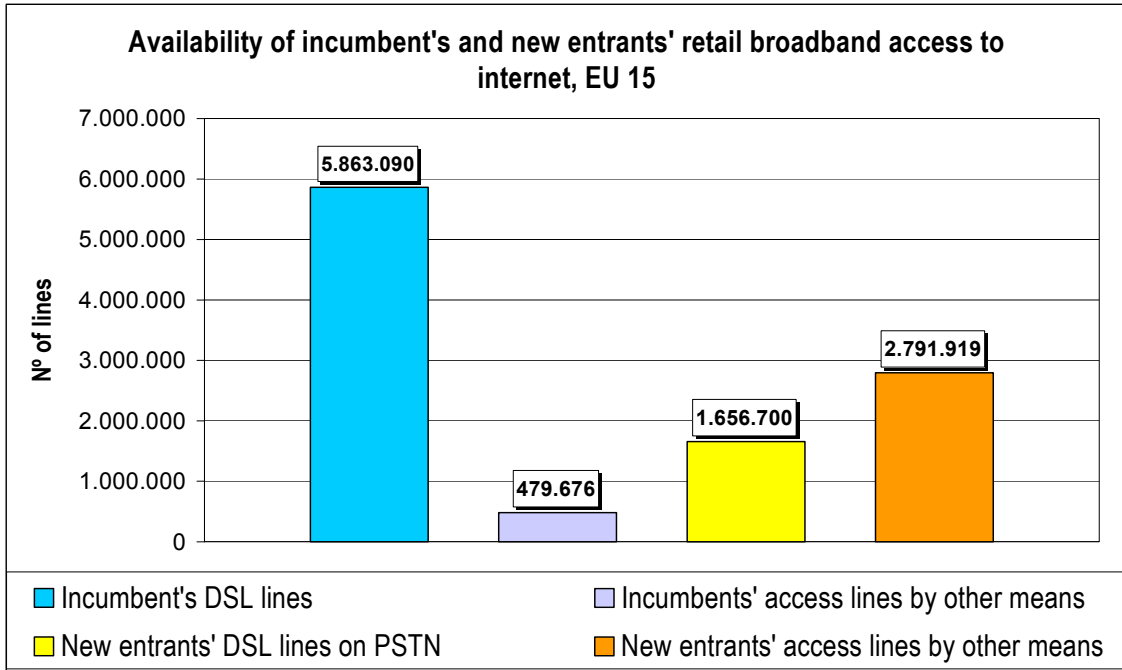


Chart 60

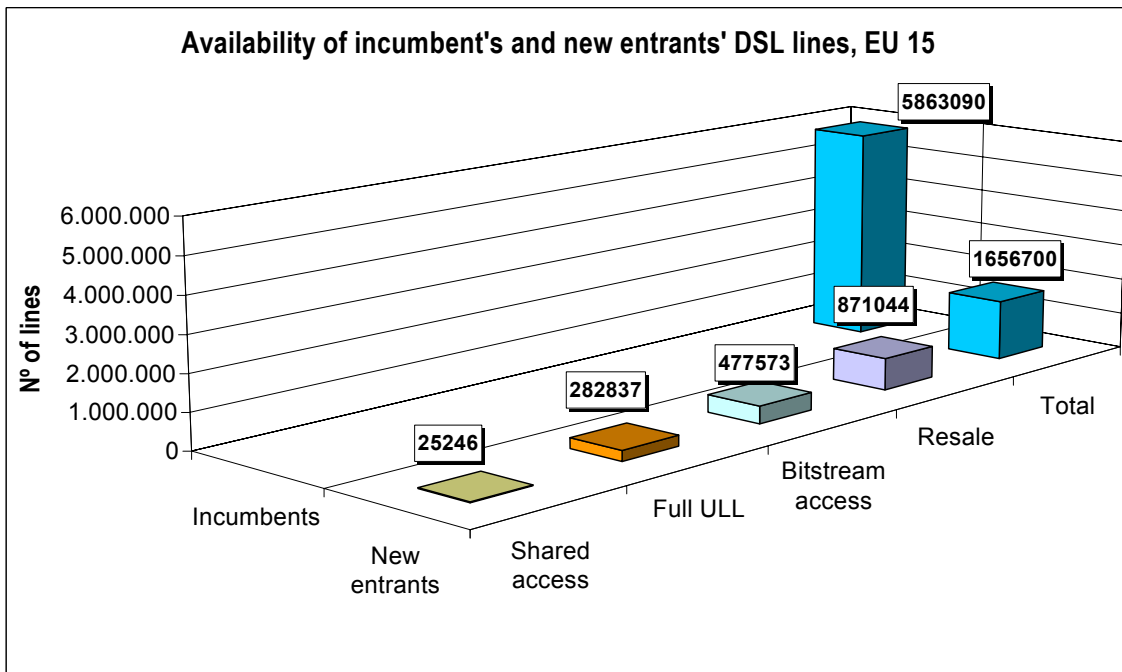


Chart 61

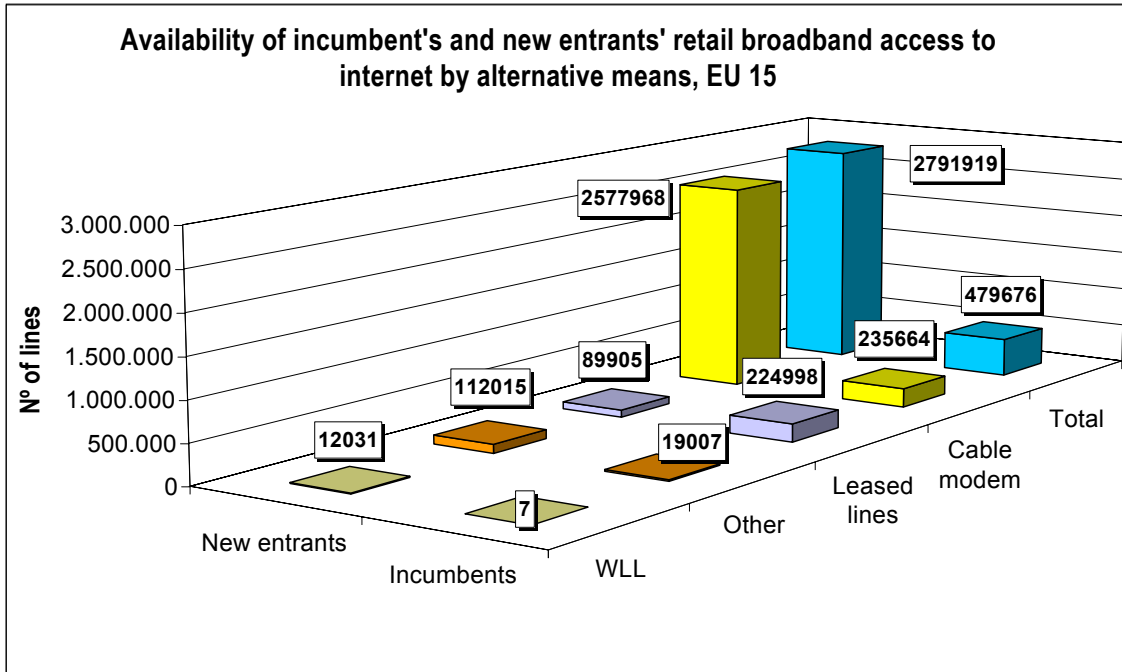


Chart 62

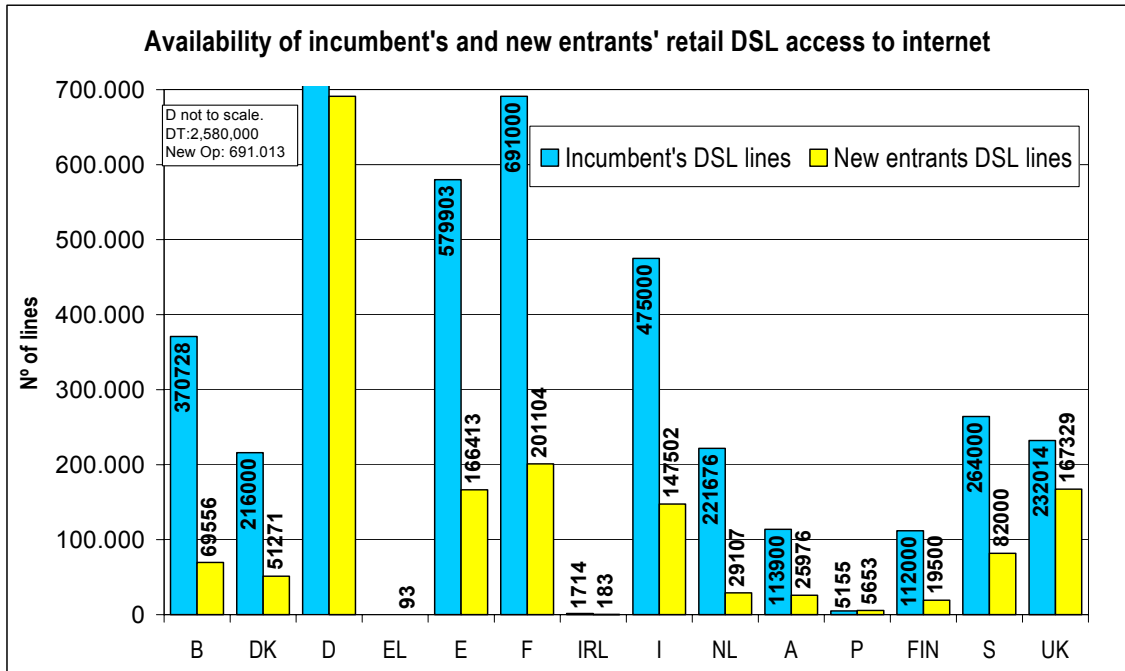
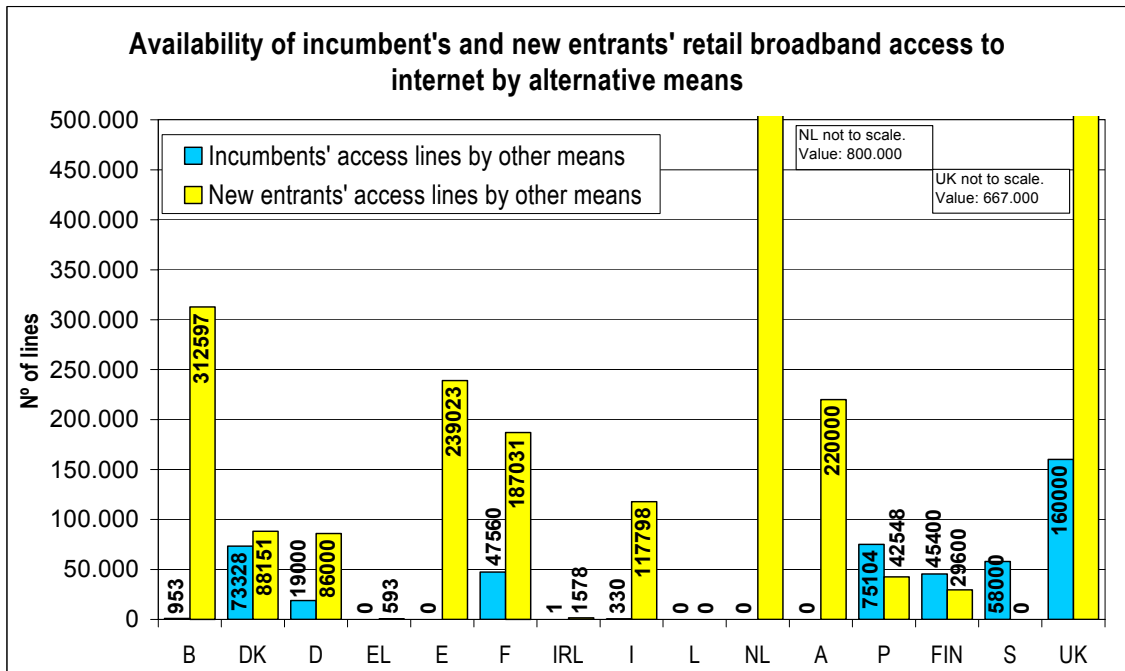


Chart 63



5.2.PRICES FOR UNBUNDLED LOCAL LOOP

This section show the charges per unbundled loop (monthly rental and connection) in case of full unbundled and shared access of the loop. Estimates of total average monthly rental cost (based on the total costs for the first year) is also presented.

In the following we assume that the loop is active and will be used to provide DSL services. In fact some Member States (Belgium, Luxembourg and Portugal) charge a different price for the loop, depending on if it is used for the voice telephony services or for DSL services. Furthermore, Belgium applied a different price for non-active loop and in some Member States charges are different in case of subsequent access.

5.2.1. PRICES FOR FULL UNBUNDLED LOCAL LOOP

In Belgium a supplementary fee of 28.29 for disconnection is also charged. It should be noted that a disconnection fee is not charged to the incumbent's own retail market.

Data for the connection fee in Germany refers to a unique payment option.

The connection charge for Italy, also includes the charges for the "verification/preparation of the copper line for the provision of ADSL service", that is always paid by the OLOs, except in the case of an existing customer changing from the incumbent to the OLO.

Data for Finland refer to a weighted average of 44 SMP operators providing ULL. Prices vary between 10 -31 € for the monthly rental and between 105 - 303 € for the connection fee.

Data for connection fee in Sweden refers to the first access. Charges for the following access is 85€.

Figure for the United Kingdom refer to an average based on determined price of 194€ per annum for the monthly rental and on a price of 140€ per annum for connection fee.

Chart 64

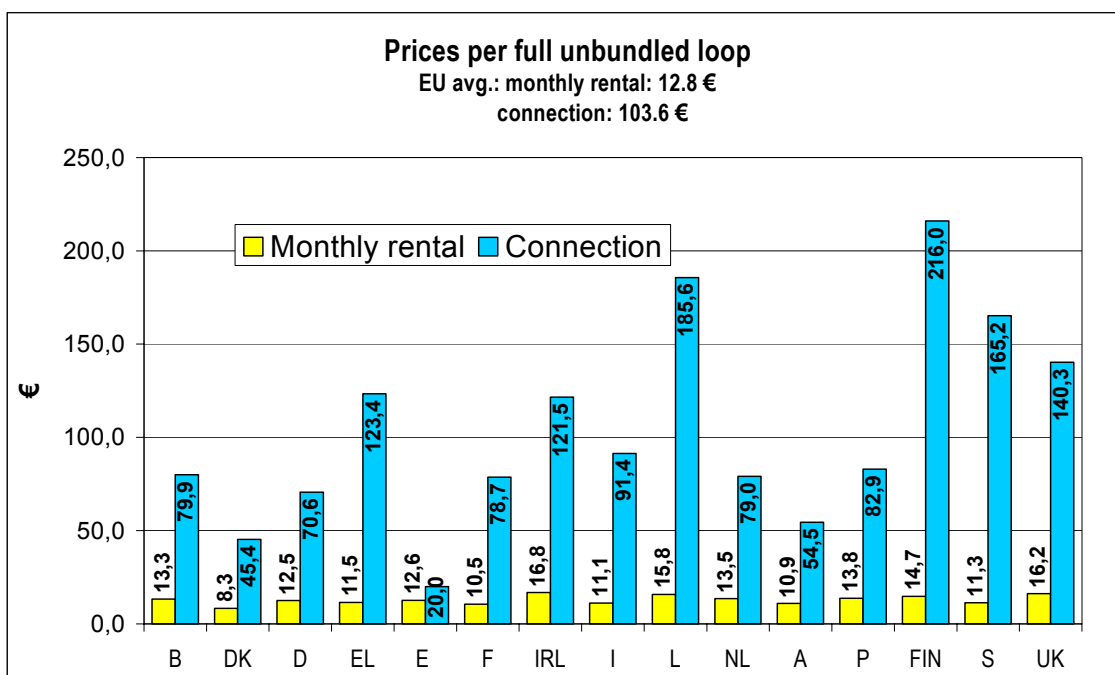
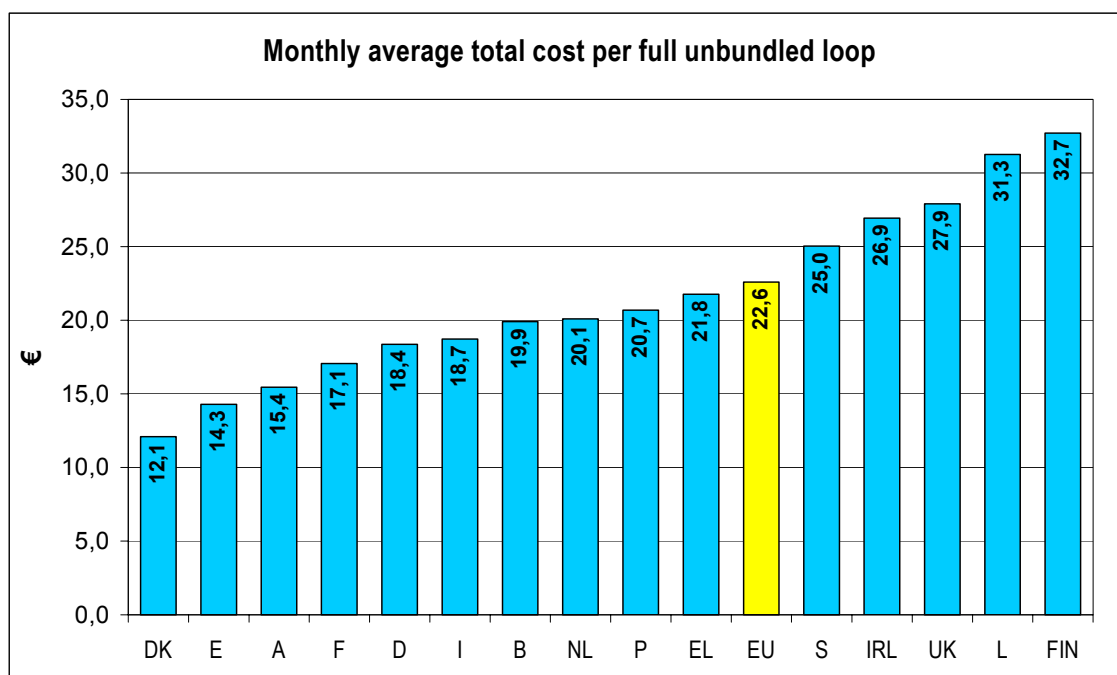


Chart 65



- Estimates are based on the total cost for the loop for the first year.

5.2.2. PRICES FOR SHARED ACCESS LOCAL LOOP

In Belgium a supplementary fee of 28.73€ for disconnection is also charged. It should be noted that a disconnection fee is not charged to the incumbent's own retail market.

Connection fee in Denmark decrease to 57€, when taking over an existing shared access connection.

Data for the connection fee in Germany refers to a unique payment option.

Data for Finland refer to a weighted average of 44 SMP operators providing shared access to local loop. According to the Telecom Market Act, monthly rental for shared access may add up to maximum half the price for full unbundling. Prices for connection fees vary between 57€ and 260€.

Data for Sweden for connection fee refers to the first access. Charges for the following access is 85€.

Data for the United Kingdom refer to an average based on determined price of 84€ per annum for the monthly rental and on a price of 186€ per annum for connection fee.

Chart 66

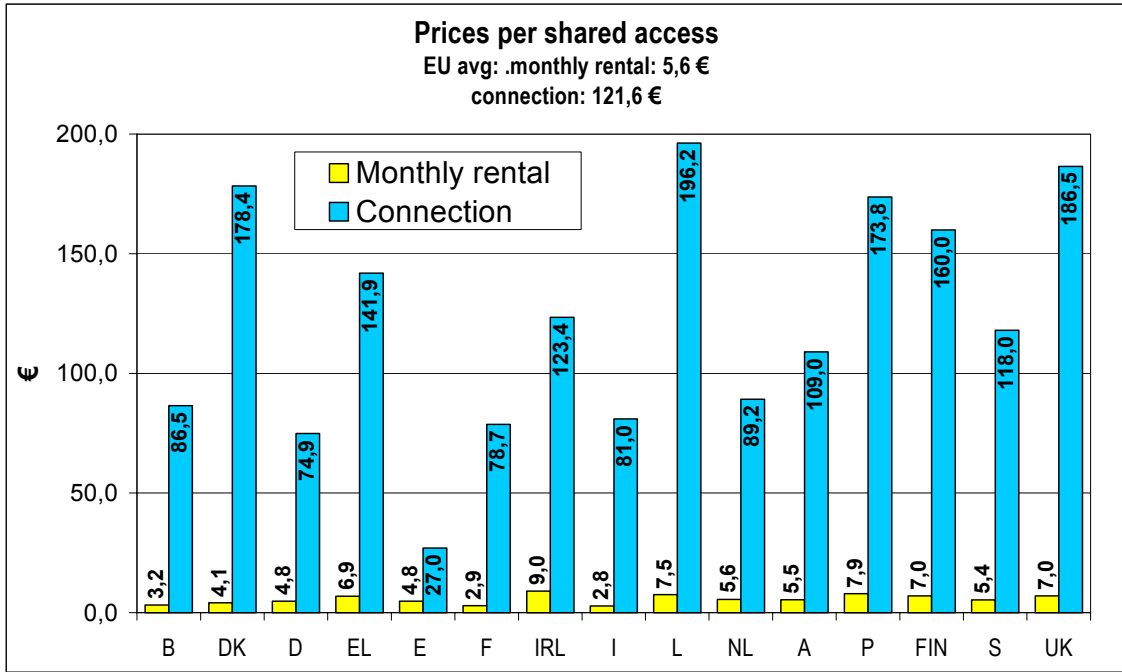
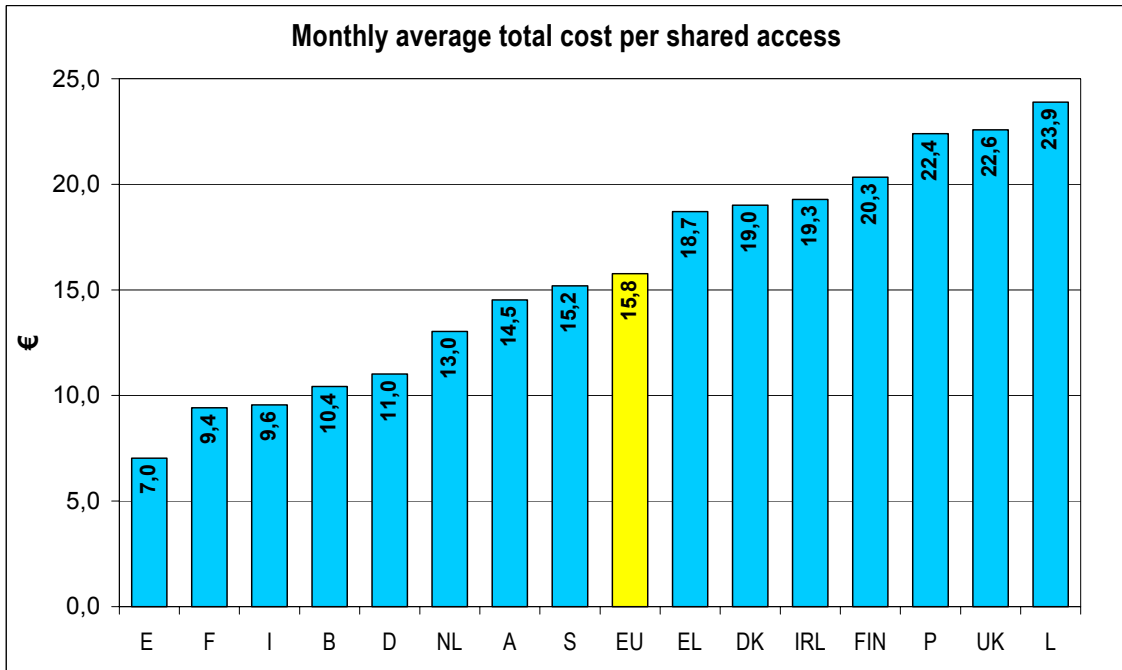


Chart 67



- Estimates are based on the total cost for the loop for the first year.

6 INTERNET SERVICES

6.1. INTERNET MARKET DATA

This section provides information about the penetration of the internet in European households as well as about the number of Internet Service Providers (ISPs).

The following chart shows the percentage of households having internet access, irrespective of the technologies used: normal public switched telephone network (PSTN) or broadband access (DSL, cable modem, ISDN, WLL).

The source of the data on internet penetration is the Flash Eurobarometer 'Internet and the public at large' carried out for the Commission by EOS GALLUP Europe between May and June 2002.

A new survey will be carried out in November 2002 for which data will be available in December 2002.

The data on the number of ISPs and the availability of broadband access have been provided by the national regulatory authorities.

Chart 68

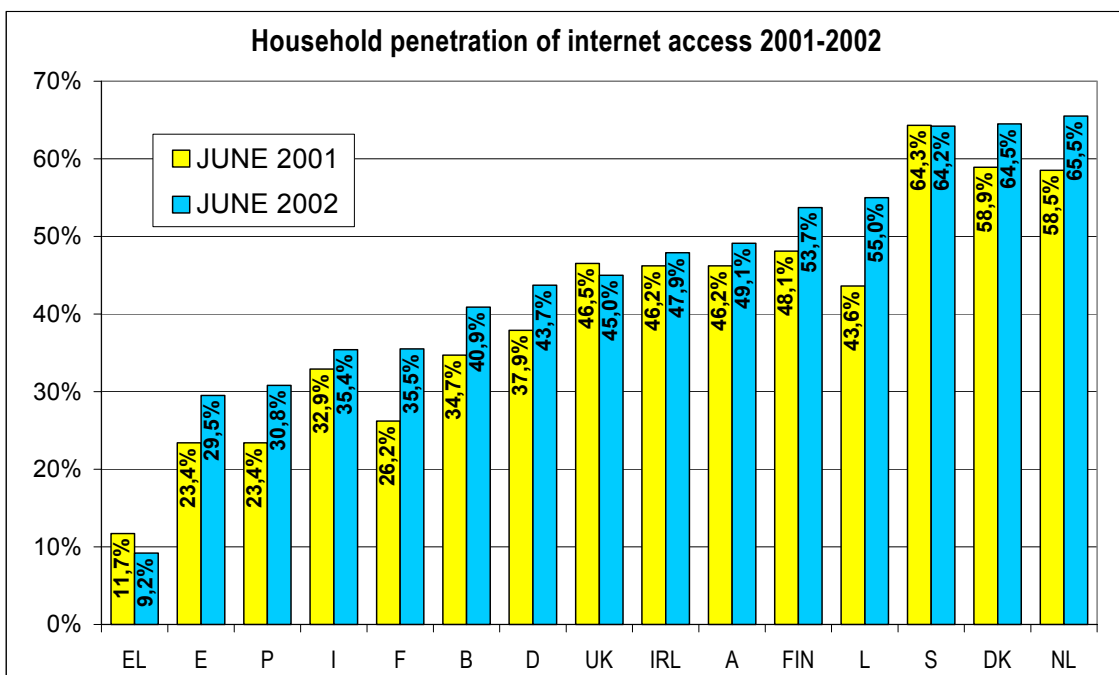


Chart 69

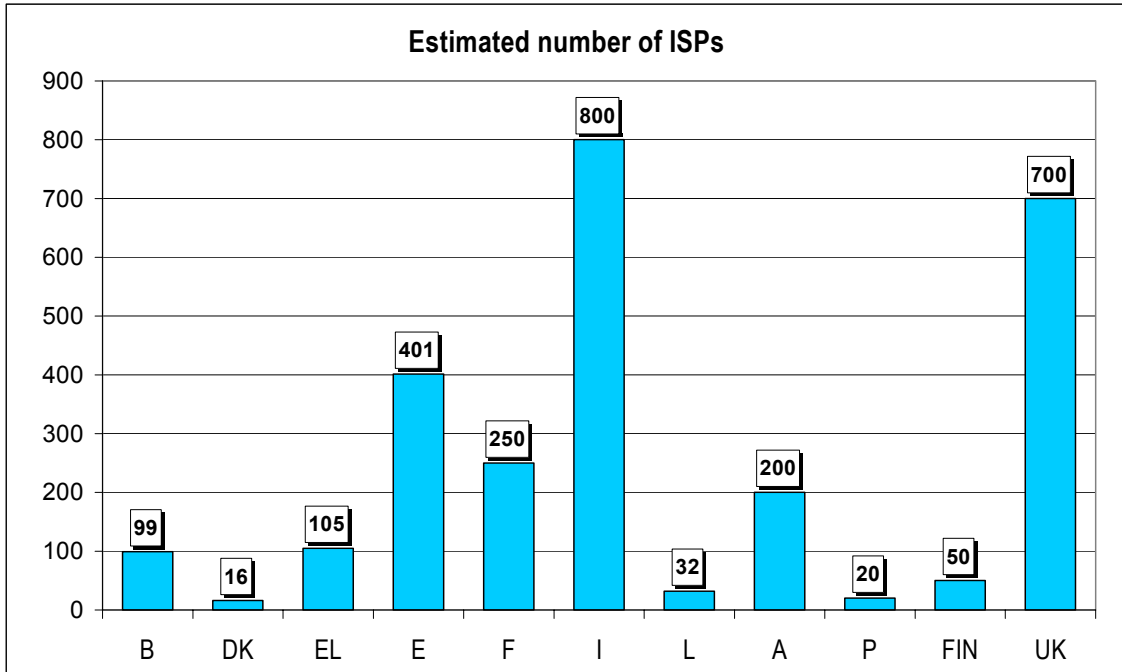
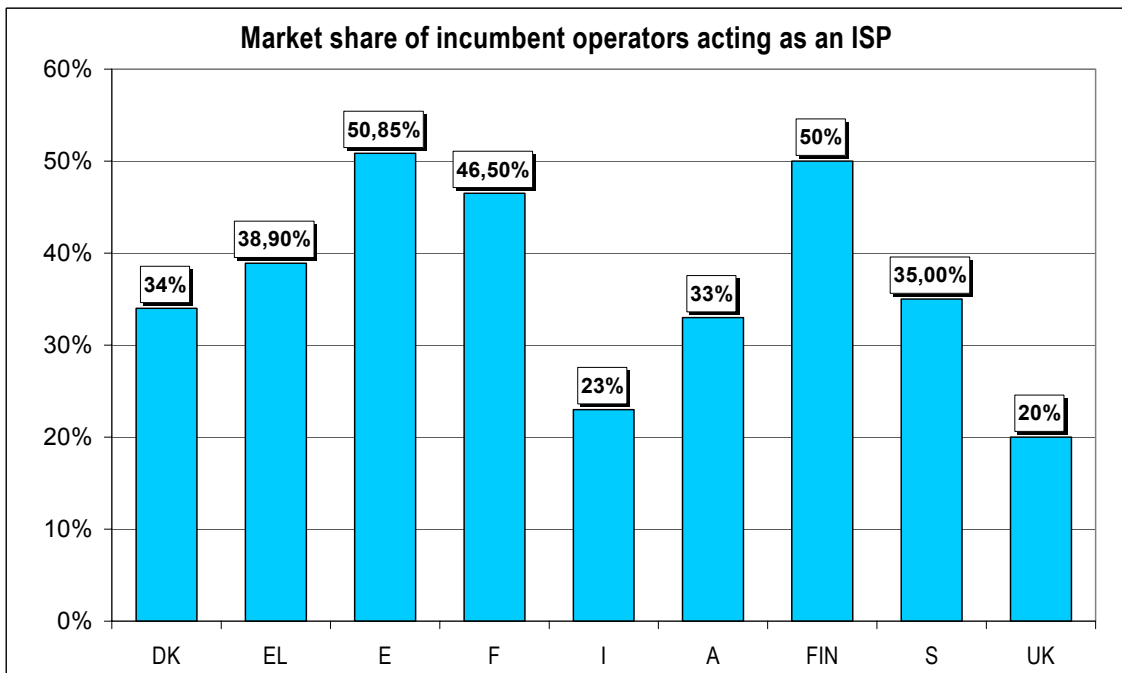
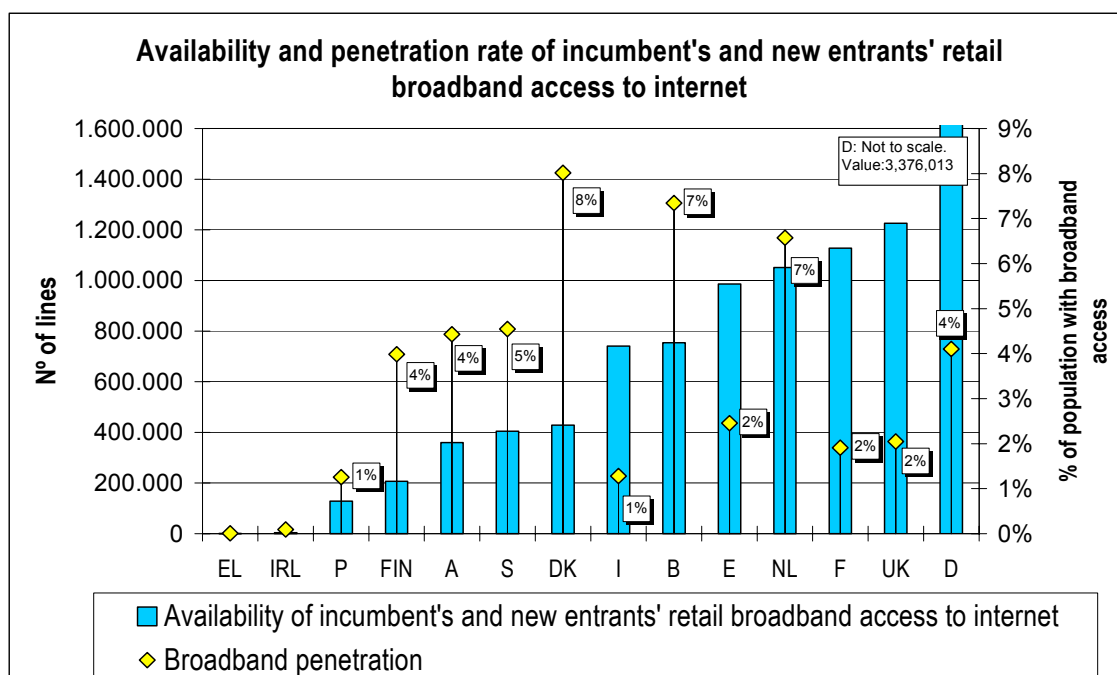


Chart 70



- Data for B, D, IRL, L, NL and P are not available.

Chart 71



6.2. INTERNET ACCESS PRICING

This section deals with the cost of internet usage for residential (20 hours off-peak time usage) and business (40 hours peak time usage of 40) through dial-up modems for access.

The figures and information are taken from a study carried out for the European Commission by Total Research Teligen and give the position as at 1 May 2002.

For each profile of usage, the following charts show the lowest prices of dial-up services to ISPs via a standard telephone line in each country. This has required the analysis of the telephony charges in the 15 countries, in addition to the actual ISP charges, in order to find the best overall option for the types of access described by the basket profiles..

The overall summary of the dial-up access information collected covers 92 different providers with 253 packages in the 15 countries.

The criteria for selecting the ISPs were that:

- The top 5 ISPs in each country should be covered;
- Fewer ISPs could be covered as long as the combined market share was at least 80%;
- If the top 5 ISPs had less than 50% of the market, additional ISPs should be covered up to around 80% combined market share.

The analysis of dial-up access includes:

- PSTN line rental charges for residential users. Any additional charges related to the selection of the most appropriate tariff package for internet access is also included. This may for example be a telephony charge related to a certain access option;
- PSTN call charges as applicable for internet access, either using the standard local call charges, or charges defined in special internet access tariffs. Additional discounts are also analysed in this context, where they may provide even lower access call charges, for example after a certain period of access time. It should be noted that with many ISP services there are no call charges, or different call charges from the carrier, as determined by the ISP;

- ISP monthly rental and/or connection charges for each ISP package. Most ISPs identify their packages for use by residential and/or business users;
- ISP charges related to usage. Such charges are normally given on a per hour basis, and are accumulated to the number of hours or minutes of usage per month. Any amount of inclusive time offered with the monthly rental charge is deducted from the actual usage. Many ISP services do not have such charges;

Many operators or ISPs will have special dial up tariffs for internet access, and these have been used where appropriate.

Chart 72

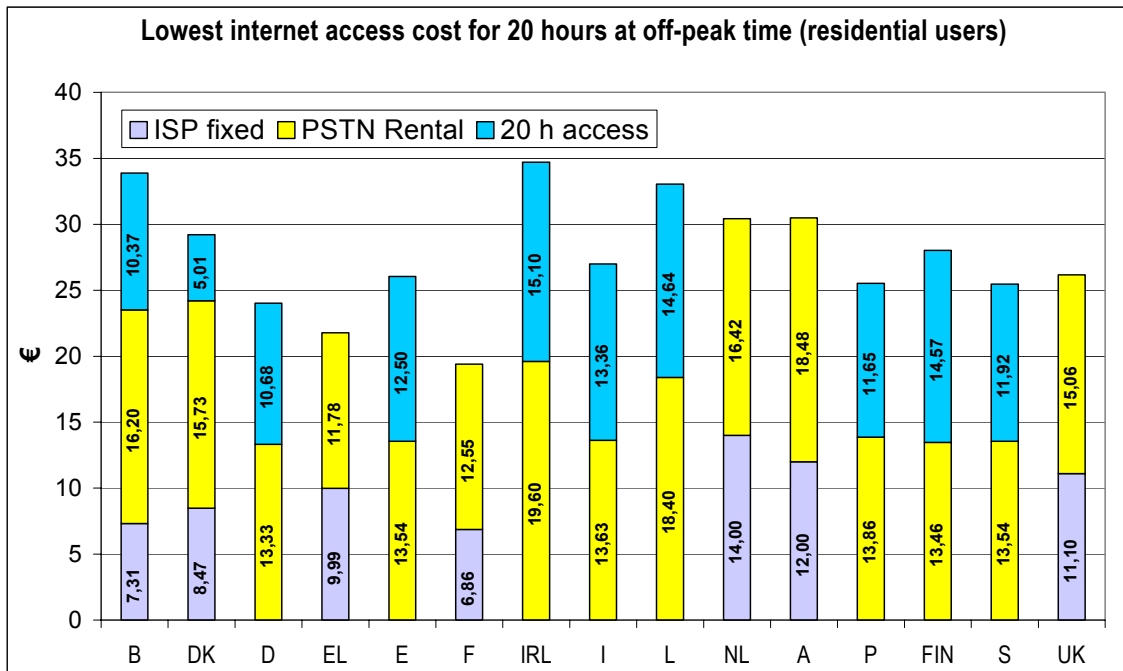
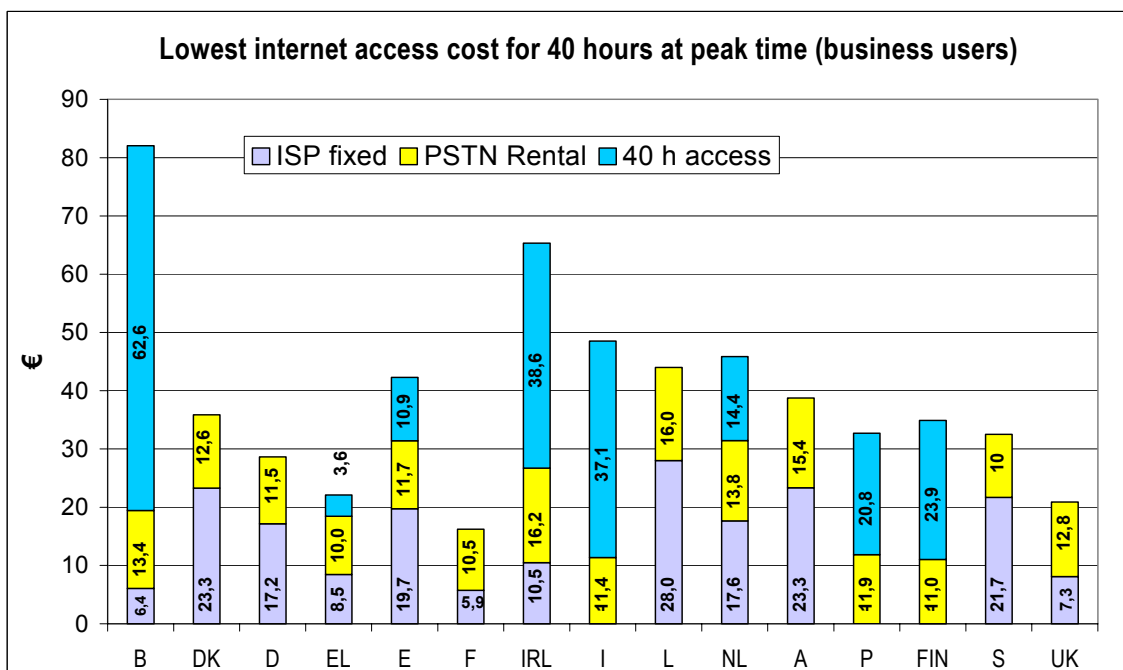


Chart 73



INCUMBENTS' RETAIL TARIFFS FOR PUBLIC FIXED VOICE TELEPHONY

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 State¹⁷ in August 2002. The price trend over the past four years is also analysed.

The incumbent operators still retain a large market share, but new entrants are increasingly gaining market shares by offering cheaper prices for certain types of calls (usually long-distance or international) or destination. 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 shown at the end of this section.

The figures and information are taken from a study carried out for the Commission by Total Research-Total Research Teligen. The data are collected from primary sources (i.e. directly from the incumbent operators).

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, long-distance, international calls and calls towards mobile networks), depending on the charging system adopted;
- the monthly rentals charged by incumbent operators;
- the charges for a composite basket of calls (local, long-distance, 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 (national and international) 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 all other OECD destinations. In addition, the price of individual calls to specific destinations are also shown.
- the price of some individual calls (3- and 10-minute local, long-distance and international calls) at peak time, inclusive of any initial charge. Furthermore, for incumbents which apply unit-based charging, 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 Nynex/Bell Atlantic/Verizon (in New York city)¹⁸ and the prices for international calls are those charged by

¹⁷ The incumbent operators considered are the following: Belgacom for Belgium, Tele Denmark for Denmark, Deutsche Telekom for Germany, OTE for Greece, Telefonica for Spain, France Telecom for France, Eircom for Ireland, Telecom Italia for Italy, P&T Luxembourg for Luxembourg, KPN for the Netherlands, Telekom Austria for Austria, Portugal Telecom for Portugal, Sonera for Finland, Telia for Sweden, British Telecom for the United Kingdom.

¹⁸ The operator has changed name twice during the past five years. Prices for the same operator may vary depending on the specific user location in the area covered by the local operator. We have taken the prices for New York city.

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 in 1999) rather than simple averages.

7.1.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).

7.1.1. 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 raised at the start of the call (when the call is answered). This charge does not offer any call time.

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 does in effect work 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 number of seconds call time in the first unit may be less than the specified unit duration.

Minimum charge is normally used with per second billing, to ensure the operator 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.

7.1.2. 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). 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. Call set-up charge may be applied to this structure, but is relatively rare.

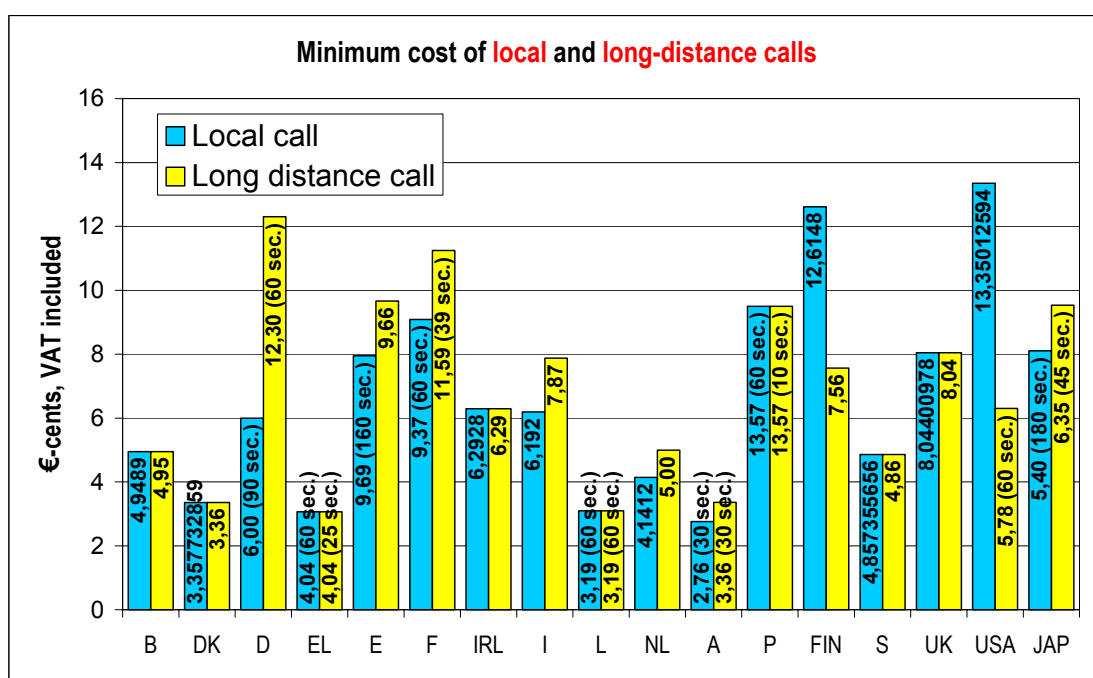
Fixed period charging uses a variable price, but fixed duration unit. The call is normally charged on a per minute basis, or per 6 seconds. The price for the period will vary with destination and time of day. The charged duration of the call will be raised to a multiple of whole periods. A call set-up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

In August 2001 only the incumbents in Greece, Luxembourg, Austria and Germany (for local and international calls¹⁹) still use a unit-based charging system. No changes are reported since the situation in August 2001.

Call set-up charges may vary according to the type of call (local, long-distance, international, calls to mobile), and for international calls according to destination. In the case of international calls, the minimum cost of a call may change according to the destination.

The following charts show the minimum cost, due to initial charges, for local, long-distance and international calls and calls to mobile charged by the incumbent operators. The free call time (i.e. the number of seconds of call time before normal time-based charging starts) is shown in brackets. Values are expressed in €, including VAT. It should be noted that while some operators apply identical set-up charges to local and long-distance calls, the free call times can vary, as is the case in Austria and Portugal.

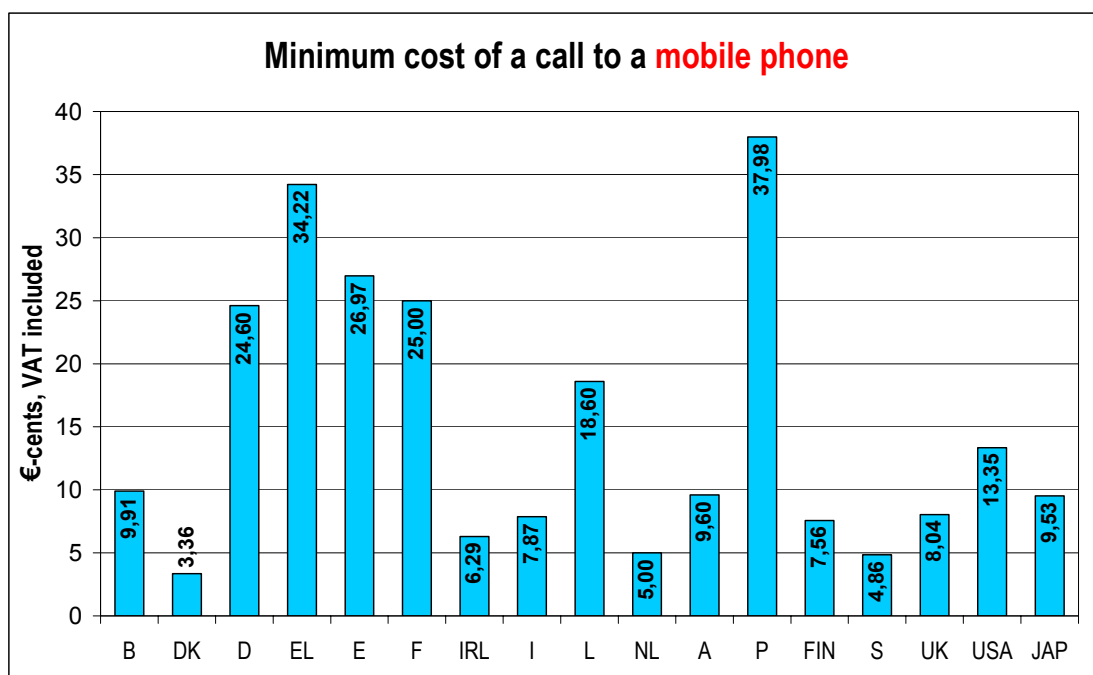
Chart 74



- Austria: Peak time

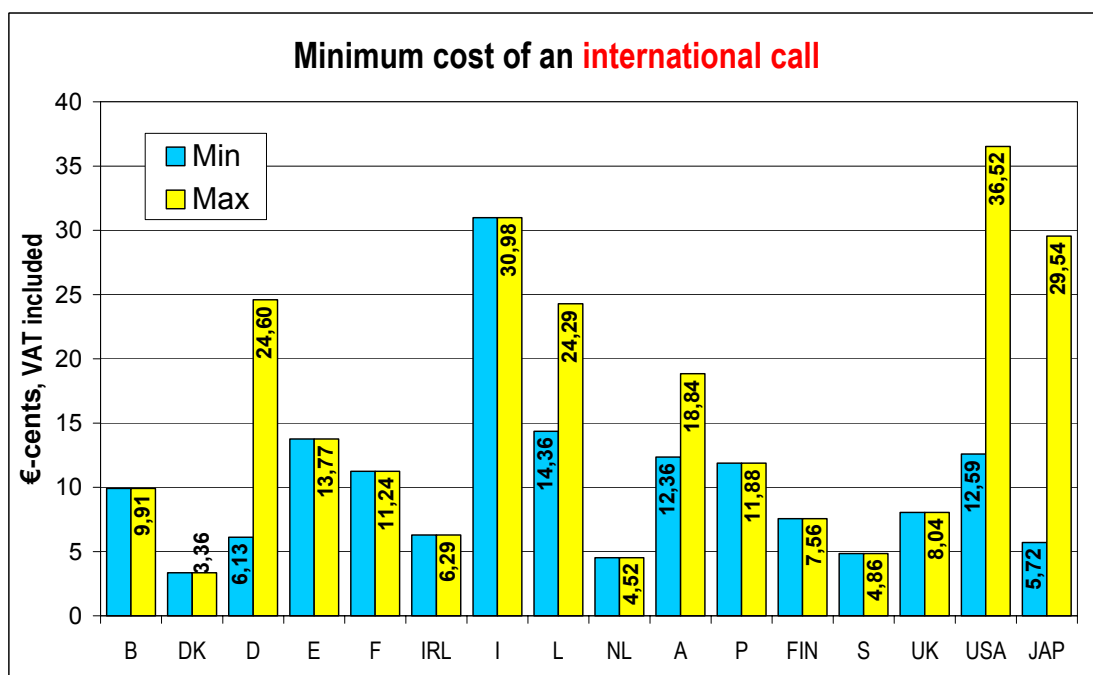
¹⁹ National calls and calls to mobile are charged per minute rather than the normal unit.

Chart 75



- Austria: Peak time

Chart 76



- Data for EL not available

7.2. MONTHLY RENTAL CHARGED BY THE INCUMBENT OPERATORS

The following charts show the incumbent's monthly line rental charges for residential and business users in August 2002 and the variation in nominal terms in each country since August 1998. 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.

The incumbent operators in Italy, Sweden and the United Kingdom apply different monthly line rental charges for residential and business users. In the Netherlands and Austria two different

packages have been chosen for residential and business users, hence different charges. In the other countries the differences between the types of users are due only to the exclusion of VAT for business users.

Chart 77

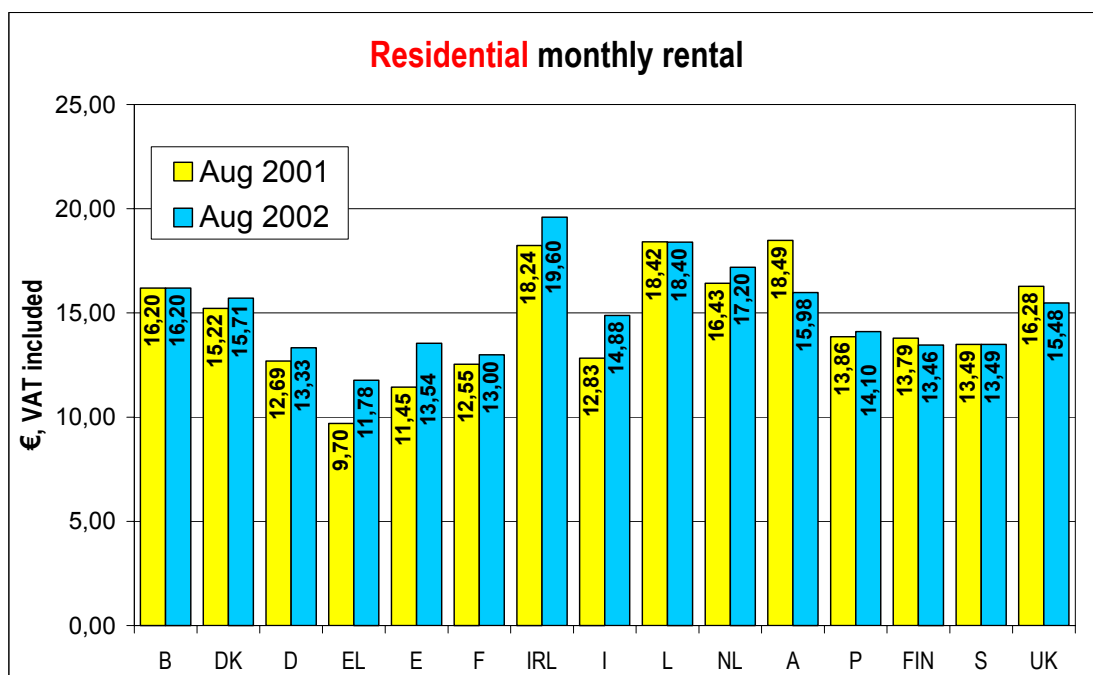
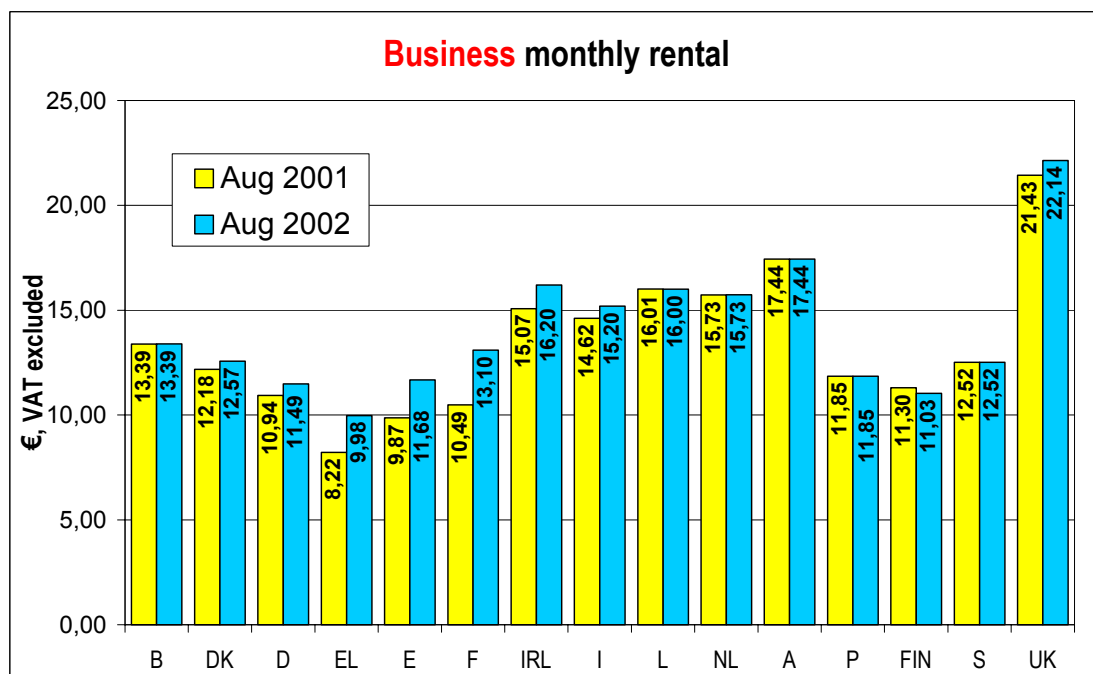


Chart 78



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

Chart 79

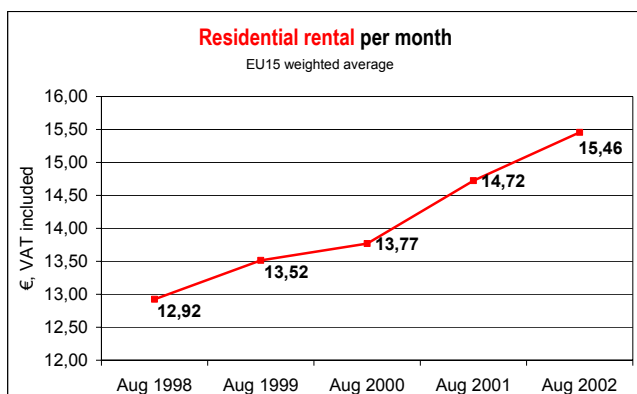
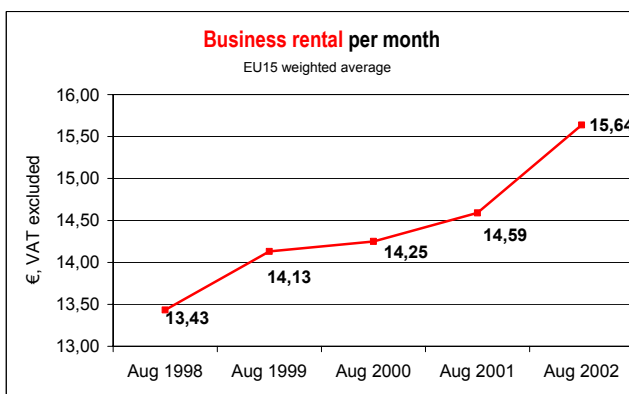


Chart 80



7.3.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 comparison²⁰.

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, long-distance, 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 long-distance), 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 August 2002, 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 new “composite OECD basket”²¹, which includes not only fixed national calls (as did the old basket), but also fixed 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 networks²², plus 72 international calls²³. The usage charges for national calls to fixed lines are calculated with a weighted distribution²⁴ 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

²⁰ A full description of the methodology can be found in “Performance indicators for public telecommunications operators”, ICCP Series No.2.2, OECD 1990.

²¹ The revised OECD baskets were adopted in May 2000.

²² Representing 10% of the number of calls to fixed lines.

²³ Representing 6% of the number of calls to fixed lines.

²⁴ A full description of the revision to the baskets and the weighted distribution (distances, time and day points and call duration) can be found in the document ‘OECD Telecommunications Basket definitions’, June 2000, available at <http://www.oecd.org/pdf/M00005000/M00005340.pdf>

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; 64% 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 networks²², plus 216 international calls²³. The usage charges for national calls to fixed lines are calculated with a weighted distribution²⁴ 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.

Chart 81

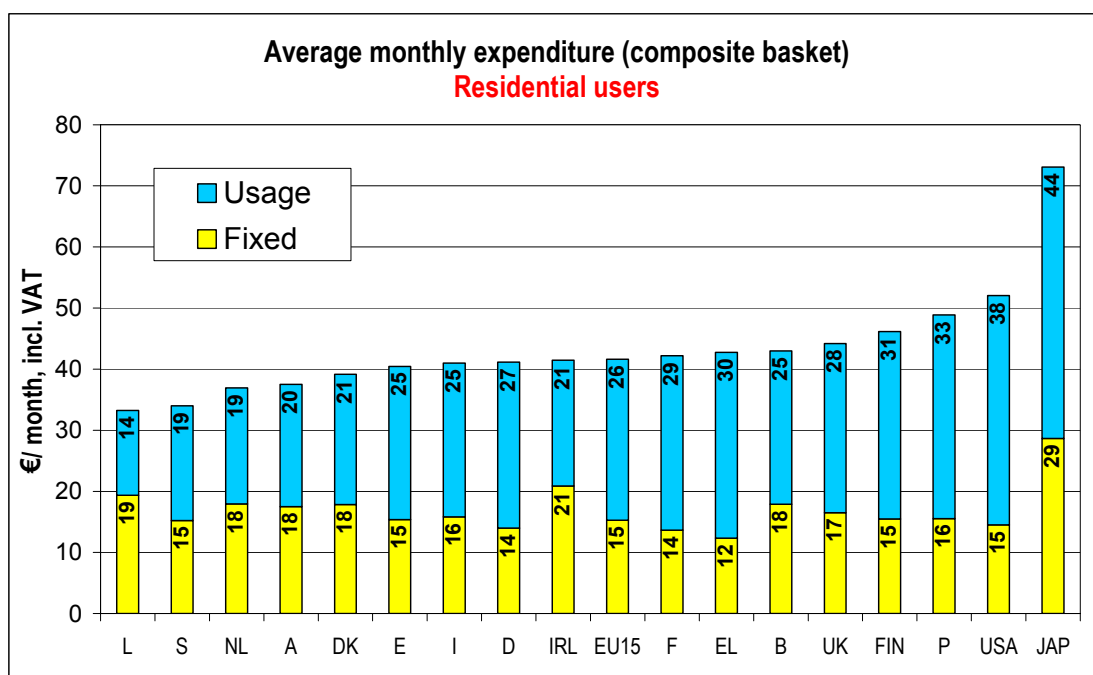
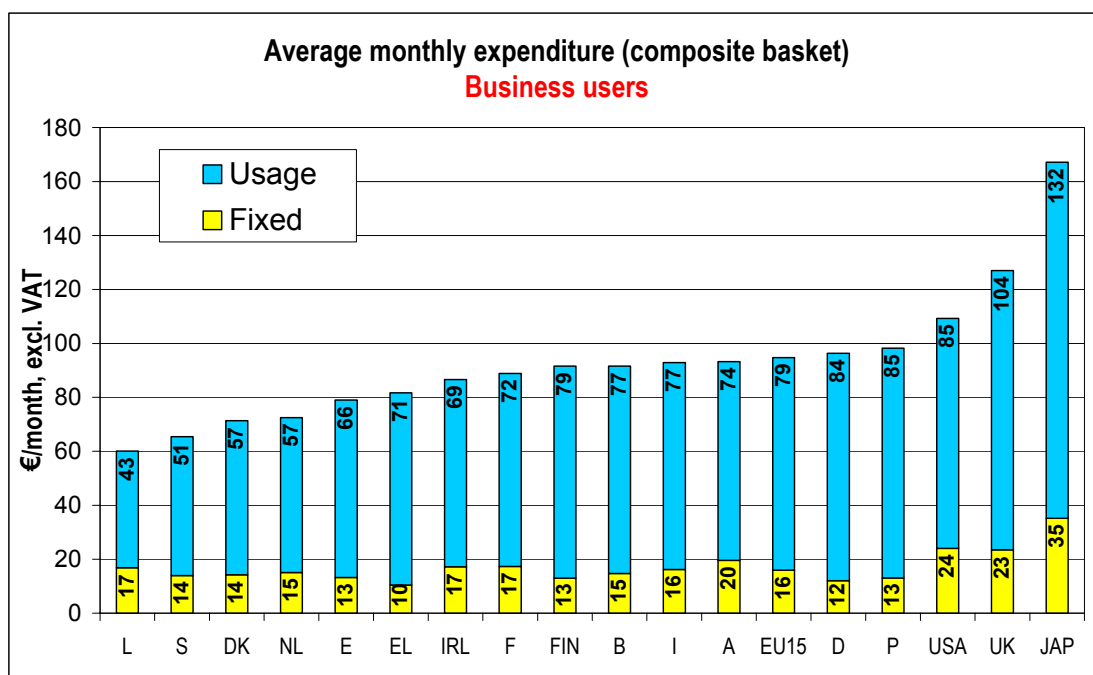


Chart 82



7.4. FIXED NATIONAL CALLS

7.4.1. 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). Where the incumbent operator uses a unit-based charging system, the price of calls of different duration and/or distances may in some cases be identical, where both calls are charged the same number of units. 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) and are expressed in € including VAT. Except where otherwise specified, the figures refer to August 2002.

Prices are indicated for three-minute and 10-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 10-minute call.

Where different tariff packages exist (Austria and the Netherlands), the basic, residential package is selected²⁵. 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 population in 1999.

²⁵ The 'Tik-Tak Privat' Tariff Package offered by Telekom Austria has been used in this corrigendum for the 2002 values. In the initial version of this annex the 'Standard Tariff' was used.

Chart 83

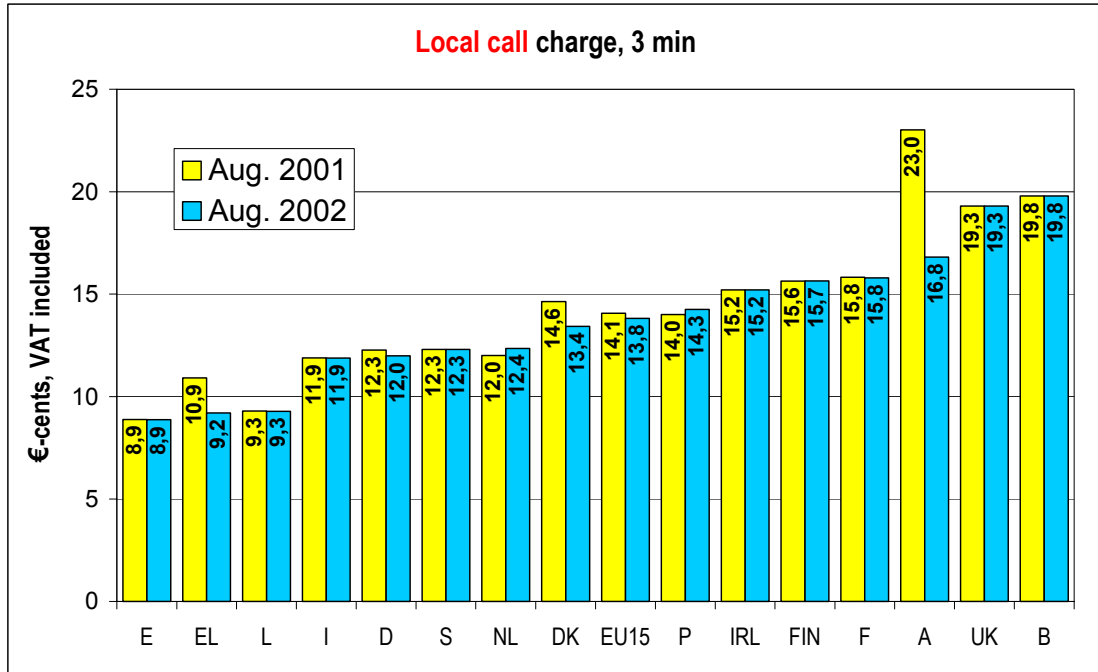


Chart 84

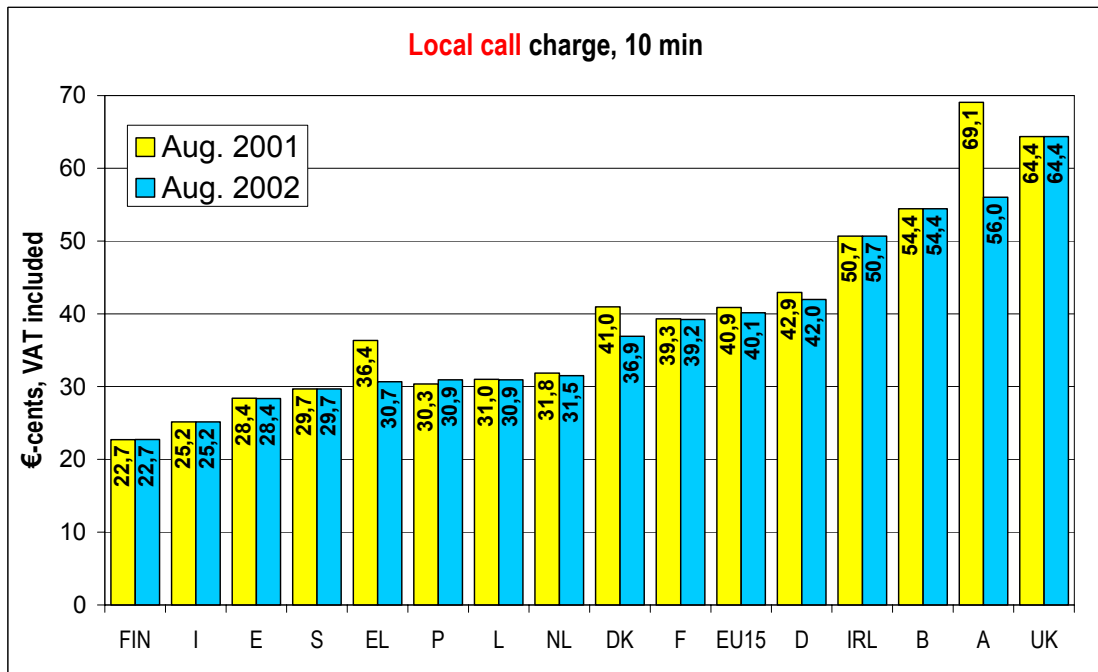


Chart 85

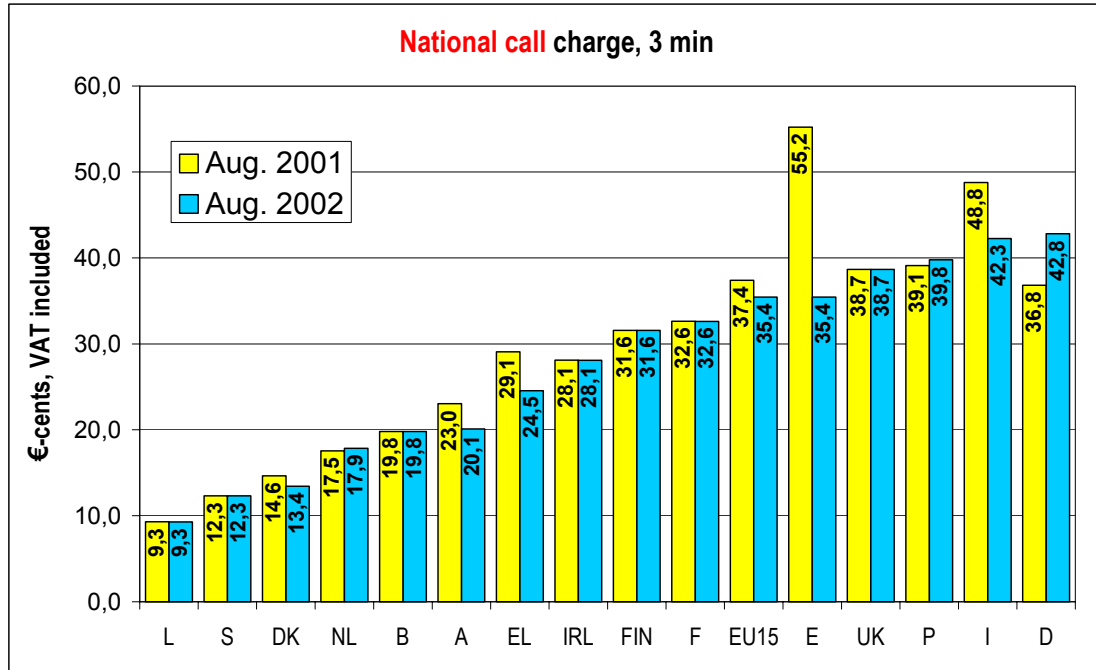


Chart 86

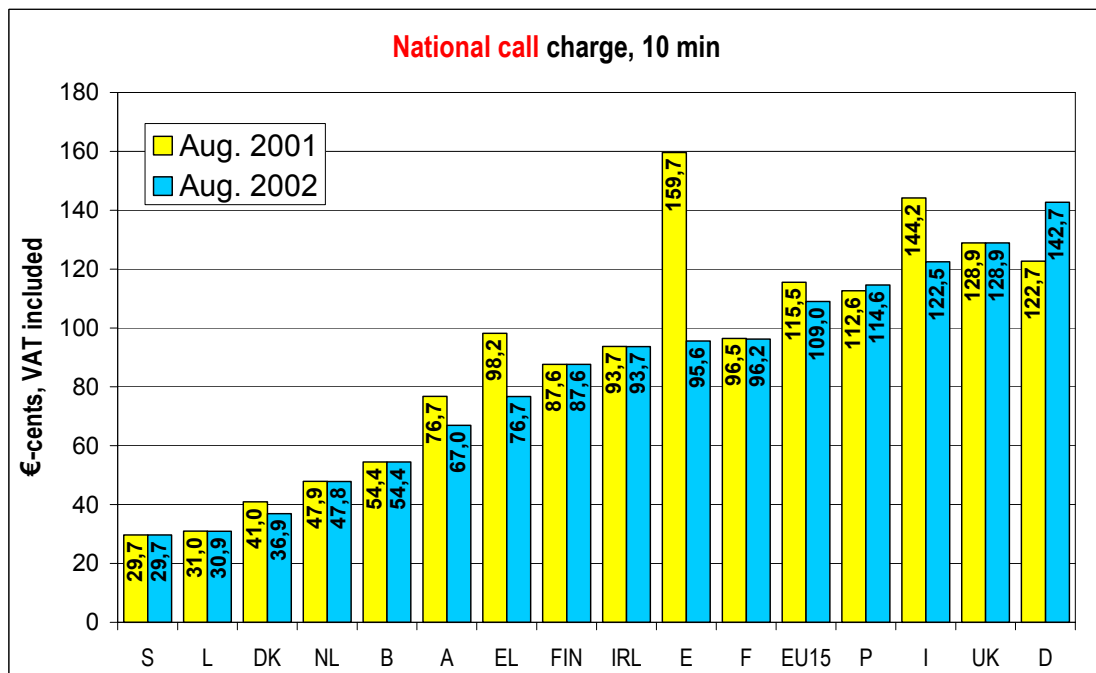


Chart87

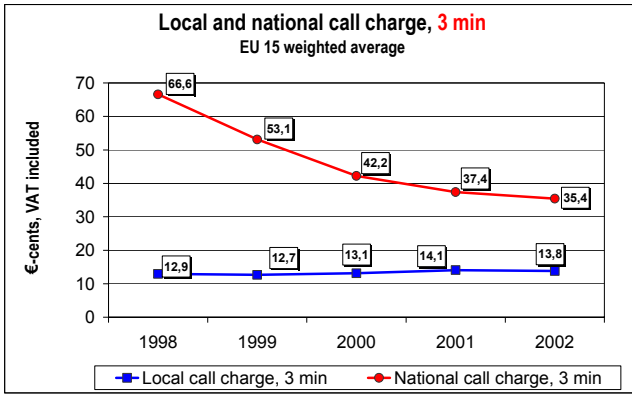
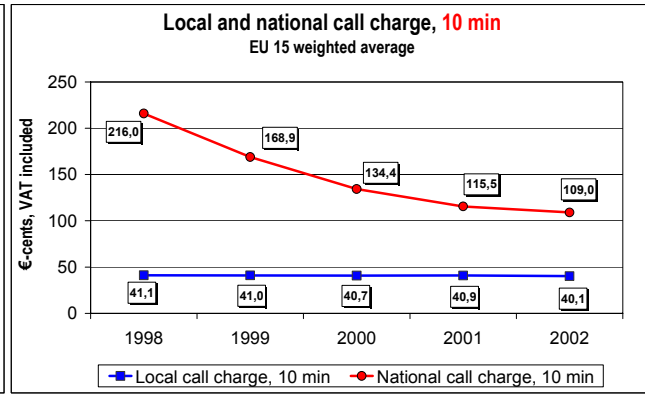


Chart88

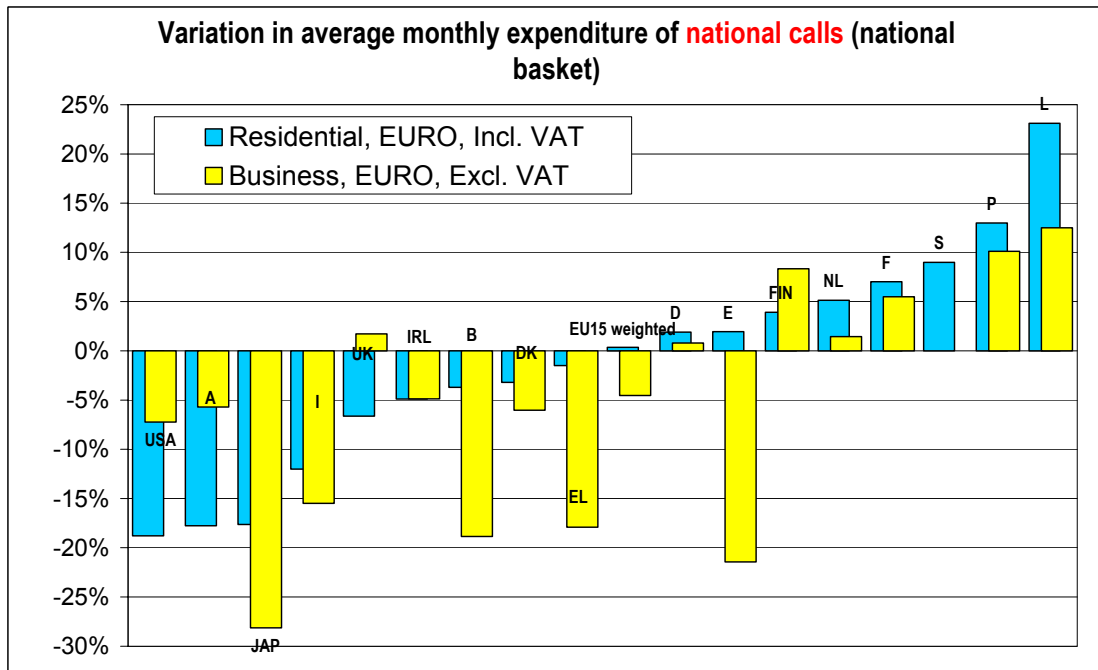


7.5.TREND OF THE BASKET FOR FIXED NATIONAL CALLS (NATIONAL BASKET)

The following charts show the variation of the monthly expenditure of residential and business users on fixed national calls between August 2000 and 2002 (in order to maintain consistency over time, the “old” OECD basket²⁶ is used, which, unlike the “composite”, does not include international calls).

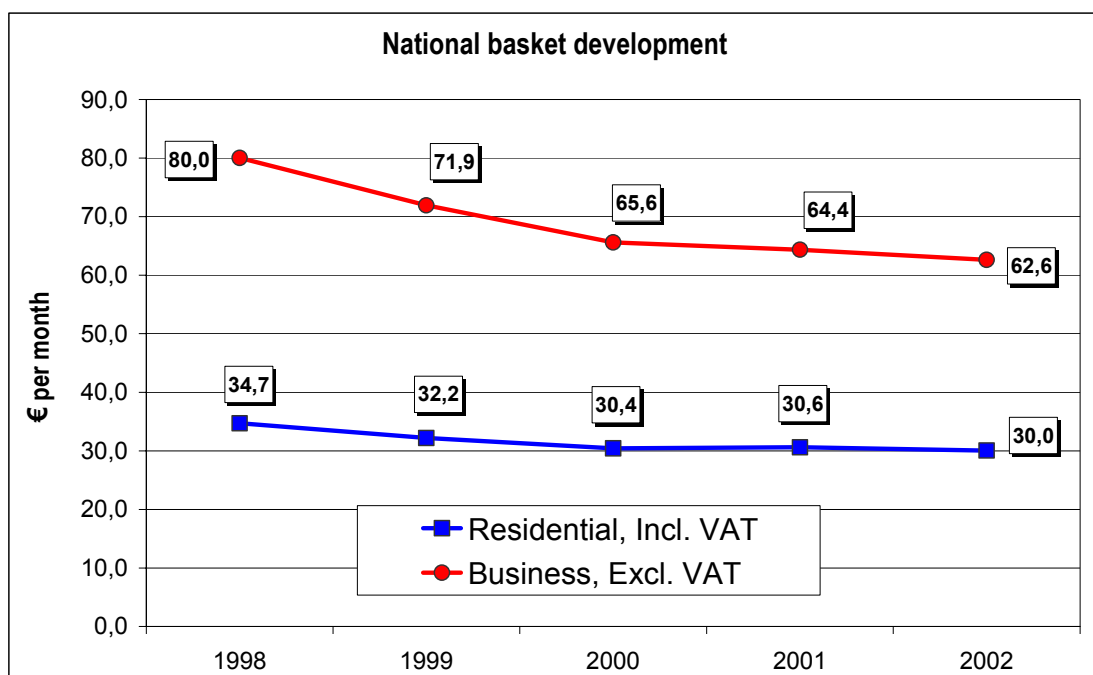
The variation in the international basket is shown in section 7.

Chart 89



²⁶ A full description of the methodology can be found in “Performance indicators for public telecommunications operators”, ICCP Series No.2.2, OECD 1990.

Chart 90



7.6.ALTERNATIVE NATIONAL OPERATORS

This section compares the prices charged for public voice telephony services by the incumbent operators in a sample of EU Member States and by the biggest competitor in each Member State.

Chart 91

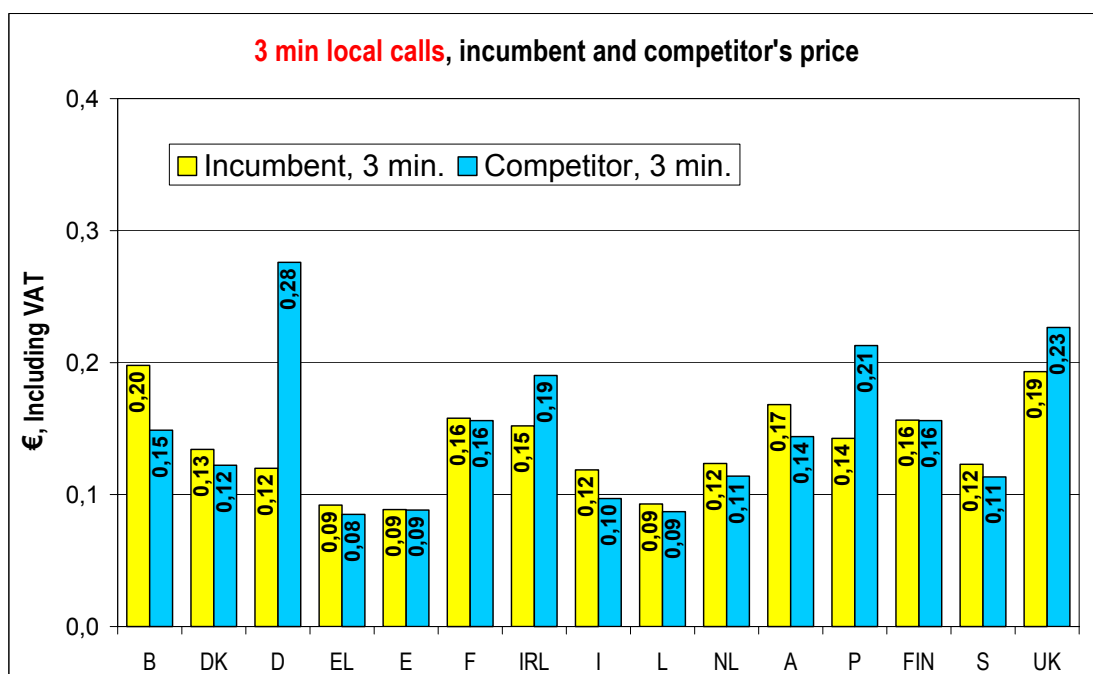


Chart 92

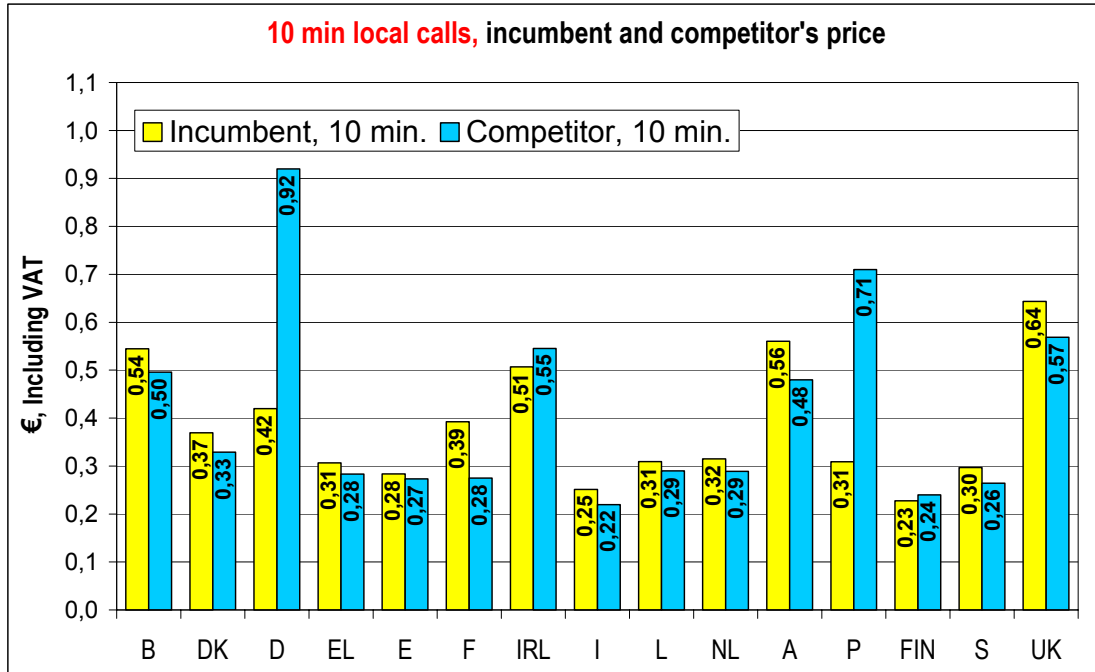


Chart 93

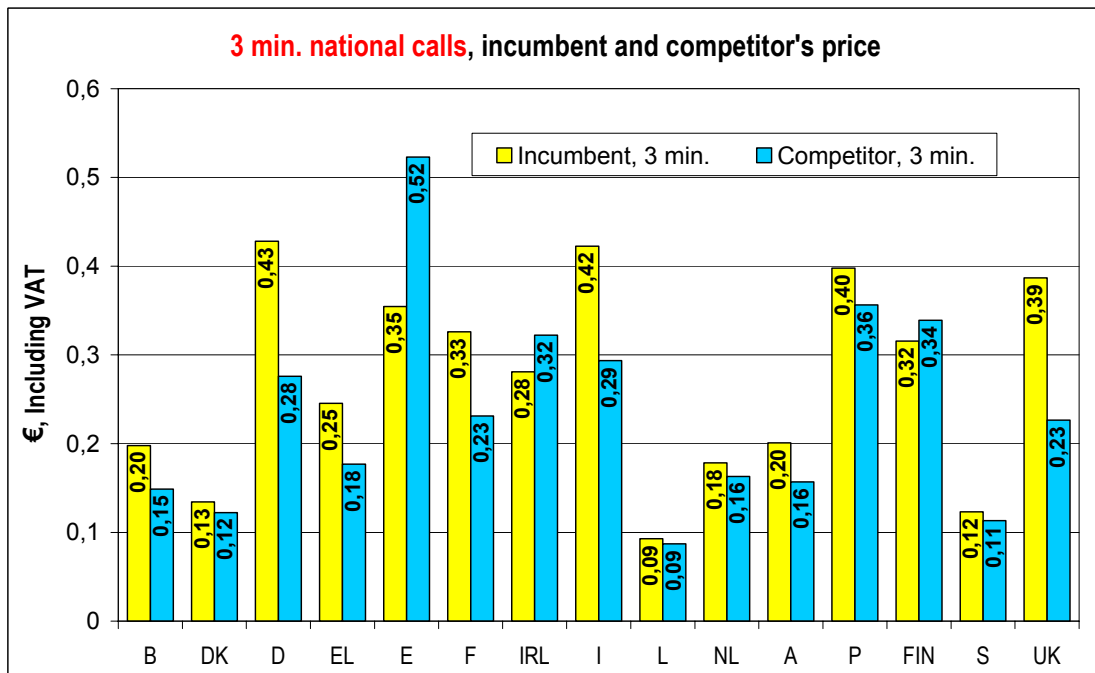
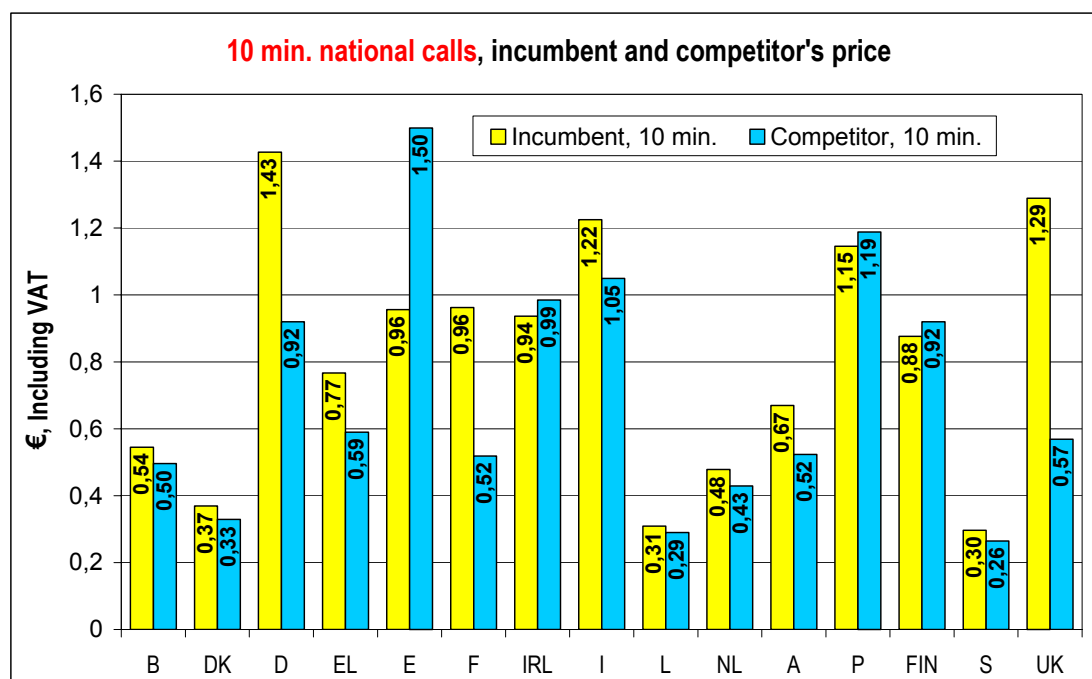


Chart 94



FIXED INTERNATIONAL CALLS

The following charts show the prices of the international call basket (an estimate of the average cost of an international call in each country) and the actual price of a 10-minute call to specified destinations (within Europe, to Japan and to the USA).

7.7.PRICE OF 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 basket²⁷ 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. The average price of an international call is lower for business users than for residential users because of the heavier weighting given to three-minute peak-hour calls, which are on average cheaper than five-minute off-peak calls, and because VAT is excluded for business users but included for residential users.

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).

The EU average value is the average of the EU countries weighted according to population in 1999.

²⁷ A full description of the revision to the baskets and the weighted distribution (distances, time and day points and call duration) can be found in the document 'OECD Telecommunications Basket definitions', June 2000, available at <http://www.oecd.org/pdf/M00005000/M00005340.pdf>

Chart 95

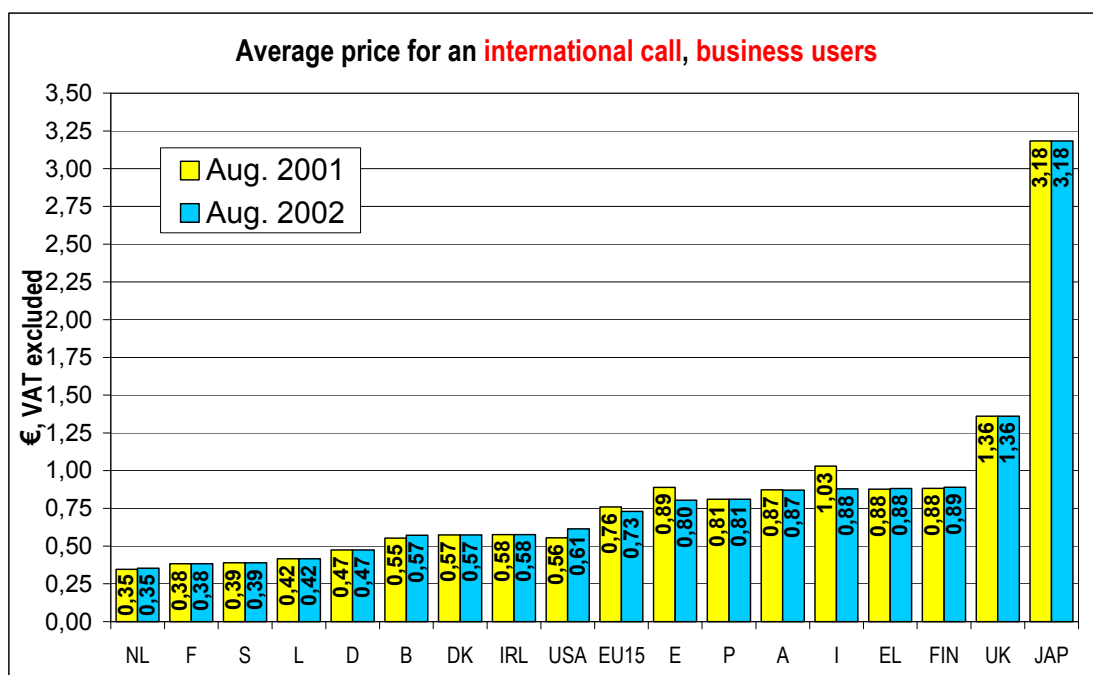


Chart 96

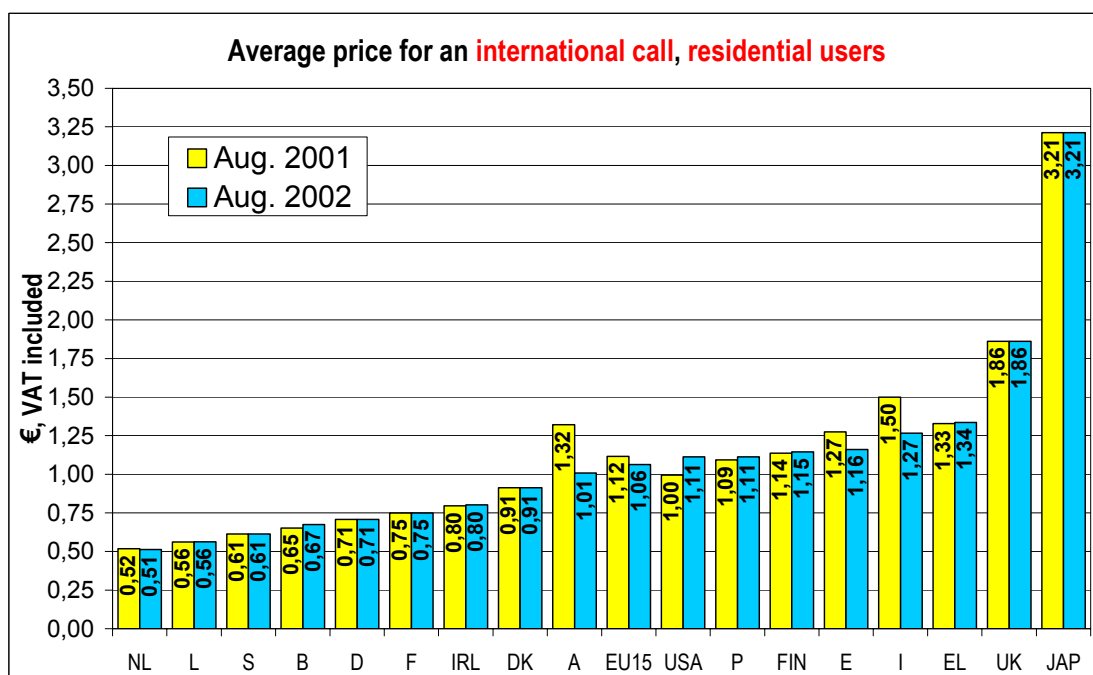
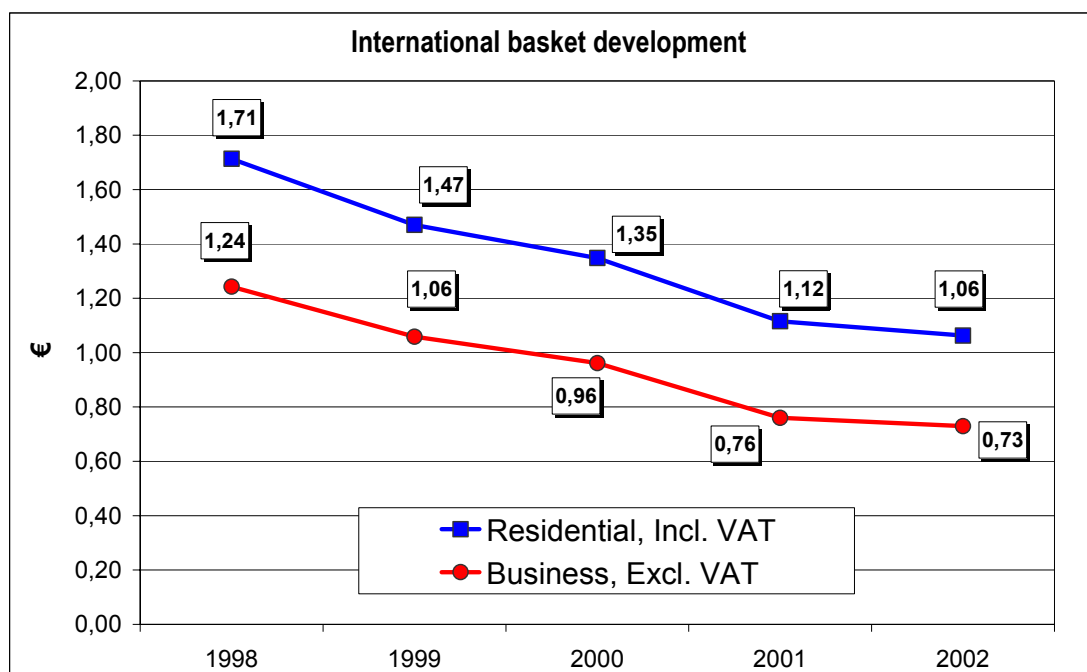


Chart 97



7.8.PRICE OF CALLS TO EU, JAPAN, USA

The following two charts show the prices of a 10-minute international call (including VAT) during peak hours (weekday 11.00) to four different destinations: neighbouring country²⁸ (near EU), more distant country²⁹ (far EU), Japan and the USA.

Figures are expressed in € at August 2002 values, including VAT, and they refer to the European incumbent operators and the EU weighted average.

²⁸ The neighbouring countries are defined as: France for Belgium (and *vice-versa*);, Germany and the United Kingdom; Sweden for Denmark and Finland; Italy for Greece (and *vice-versa*); Portugal for Spain (and *vice-versa*); the United Kingdom for Ireland, the USA and Japan; Germany for Luxembourg, the Netherlands and Austria.

²⁹ The more distant countries are defined as: Greece for Belgium, Denmark, Germany, France, Ireland, Luxembourg, the Netherlands, Austria, Finland, Sweden, the United Kingdom, the USA and Japan; Denmark for Greece, Spain, Italy and Portugal.

Chart 98

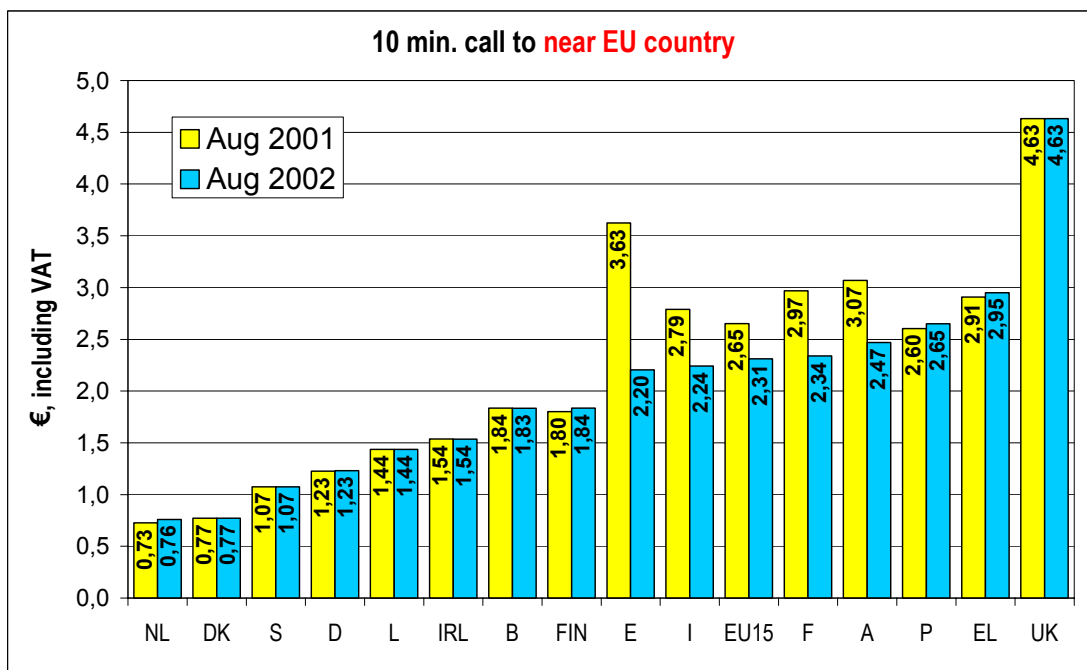


Chart 99

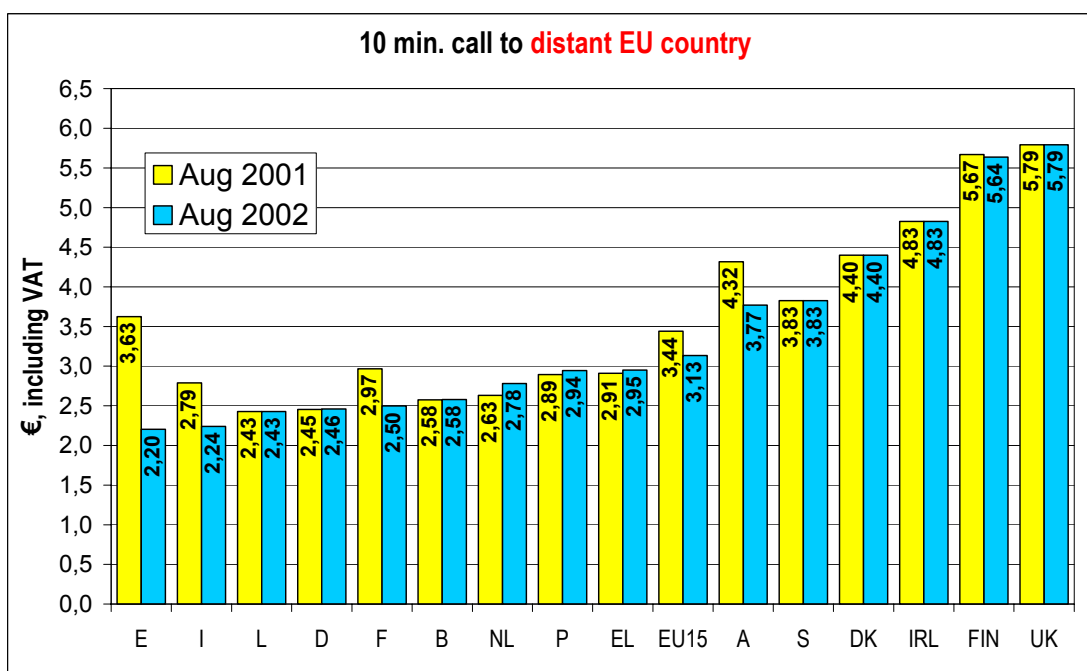


Chart 100

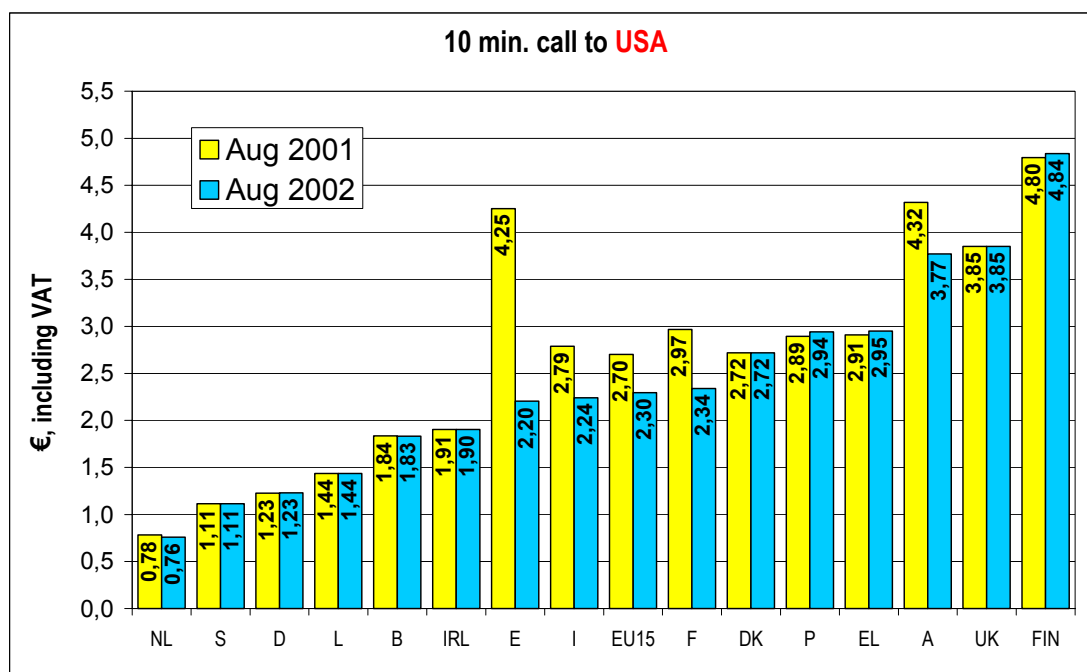
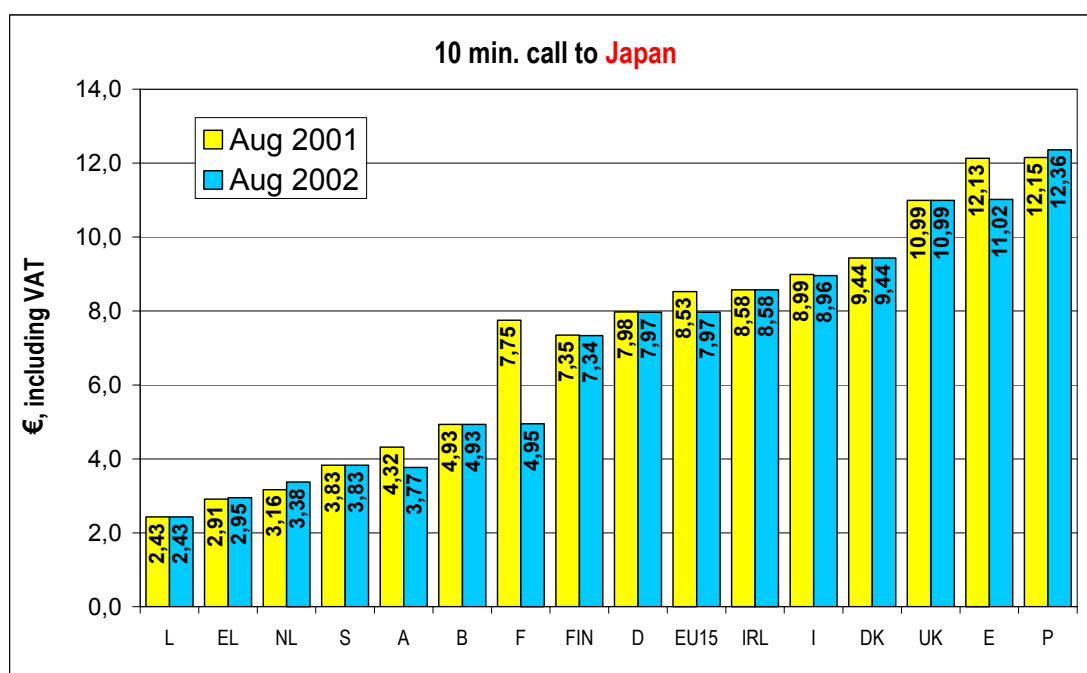


Chart 101



7.9.ALTERNATIVE INTERNATIONAL OPERATORS

The equivalent prices for competitor providers in the EU countries are shown in the charts below. One competitor per country has been analysed. The prices are shown for a 10 minute call, at peak time weekdays.

Prices include VAT and are applicable for August 2002.

Chart 102

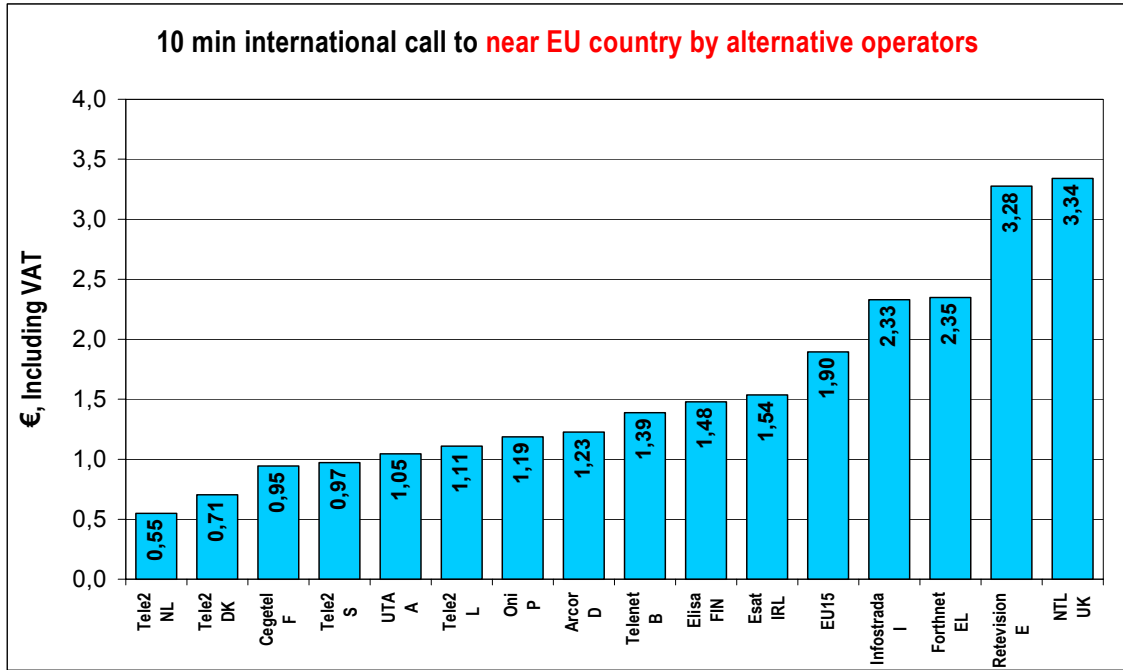


Chart 103

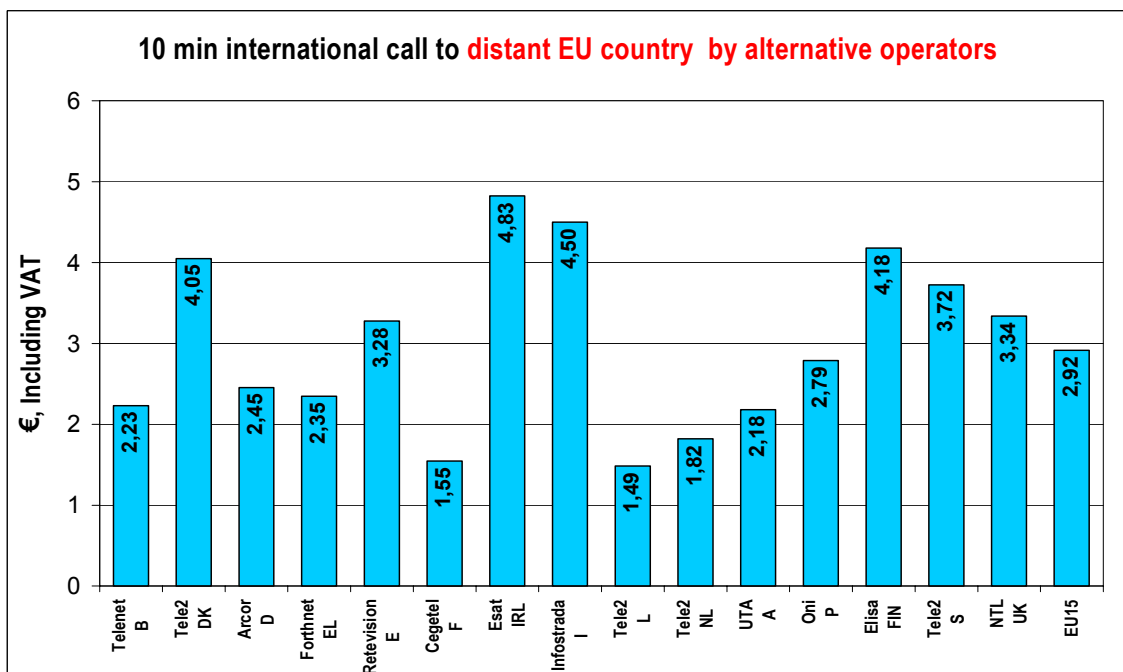


Chart 104

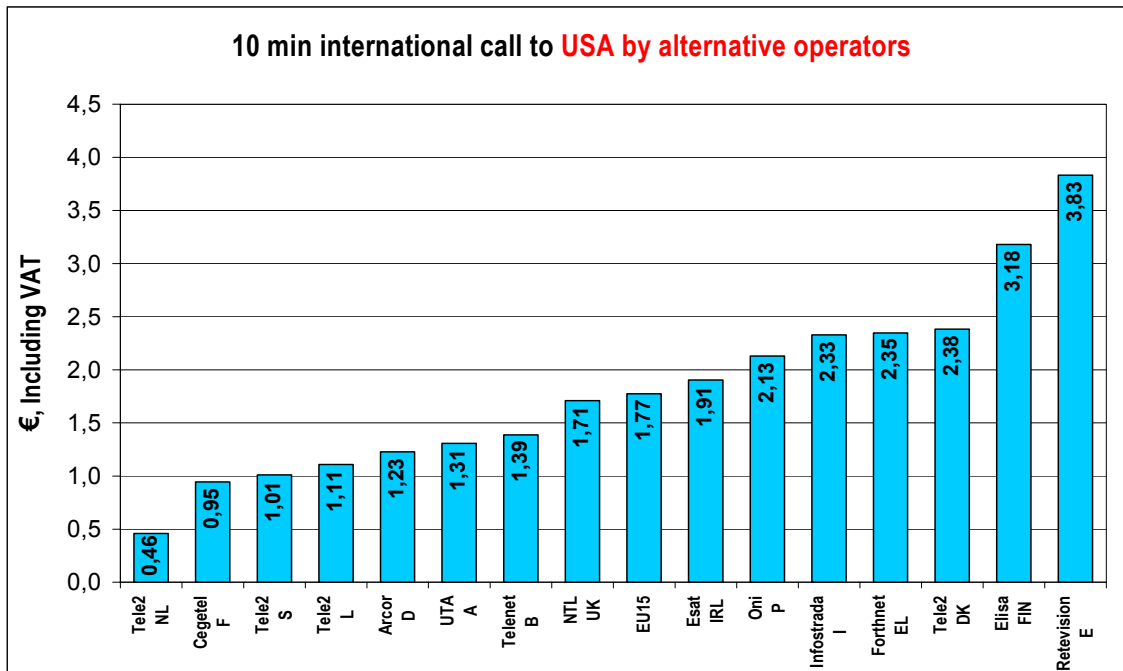
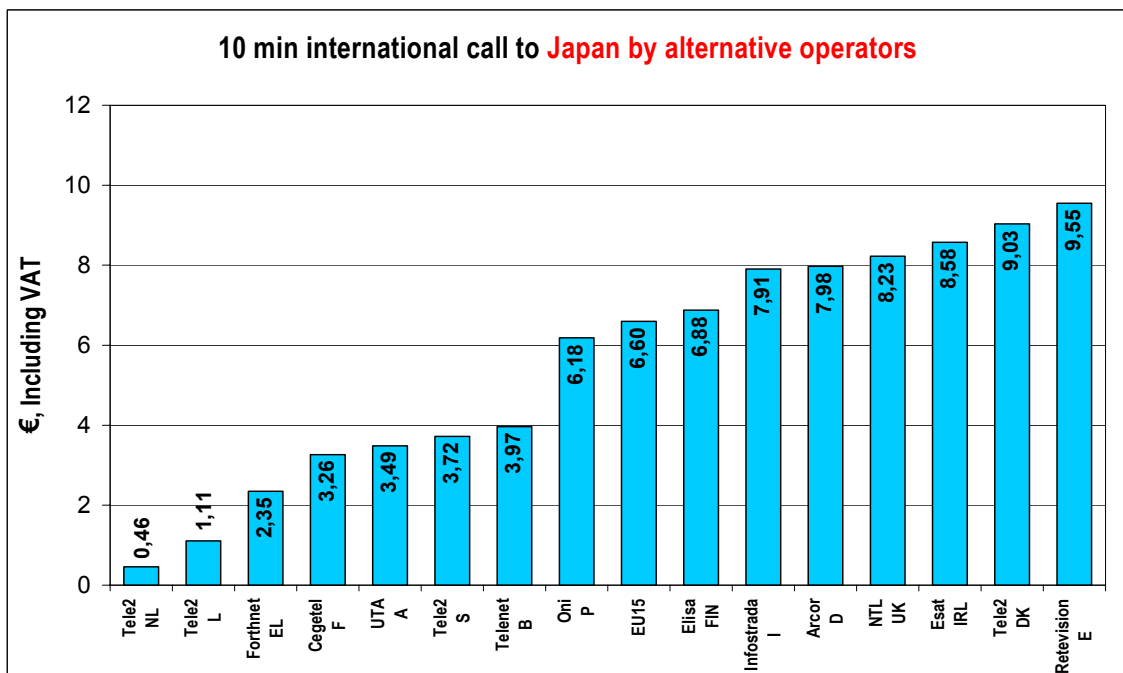


Chart 105



8 LEASED LINES RETAIL TARIFFS

This section contains an overview of prices charged by incumbent operators in each Member State for national and international leased line services as at 1 August 2002 to end users. Figures do not cover wholesale prices. Price developments are also analysed over the period August 1998-2002.

The figures and the information are taken from a study carried out by Total Research-Total Research Teligen for the Commission. Data on standard retail prices charged by incumbent operators have been collected in each country.

8.1. INCUMBENTS' NATIONAL LEASED LINES

National leased line data is provided from 1998 onwards. 2 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 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)
- 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. The countries where the price may vary with location or other non-distance related definitions, are: Belgium, France, Austria, Finland, Sweden and the UK.

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 kb/s, 2 Mb/s, 34 Mb/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 Mb/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 15 EU countries.

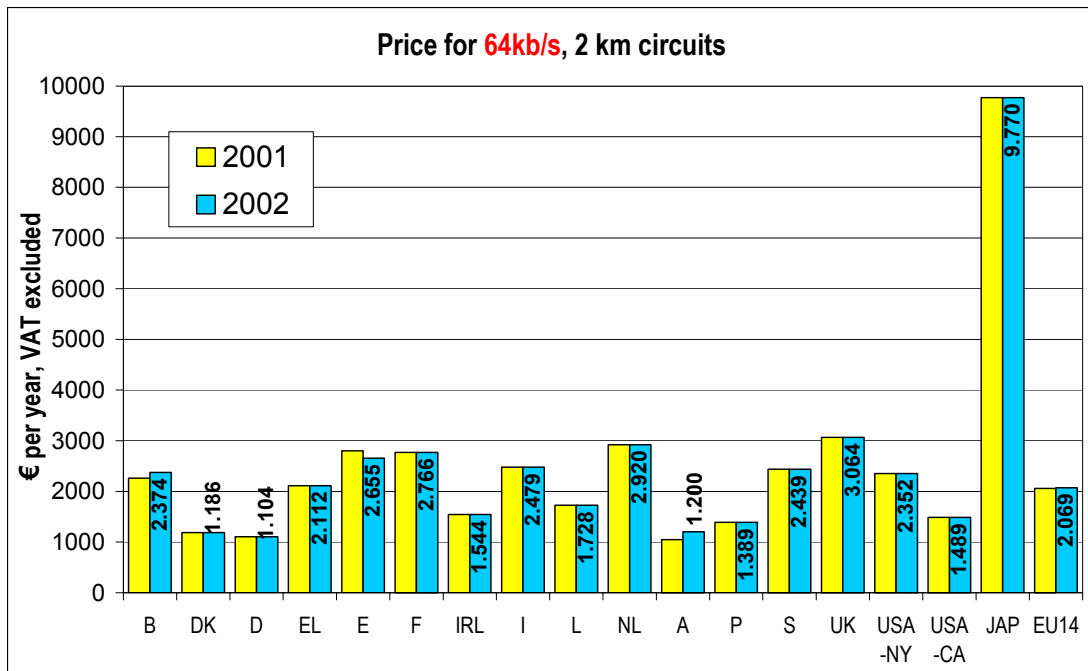
For the USA the prices of Verizon intra-LATA circuits for New York state have been used. The bitrates of leased lines offered in some countries may be different from the ones found in most EU member States. Some operators may offer 56 kb/s instead of 64 kb/s, 1.5 Mb/s instead of 2 Mb/s, 45 or 50 Mb/s instead of 34 Mb/s, and 140 or 150 Mb/s instead of 155 Mb/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 month, excluding VAT.

National leased lines prices as at 1 August 2002.

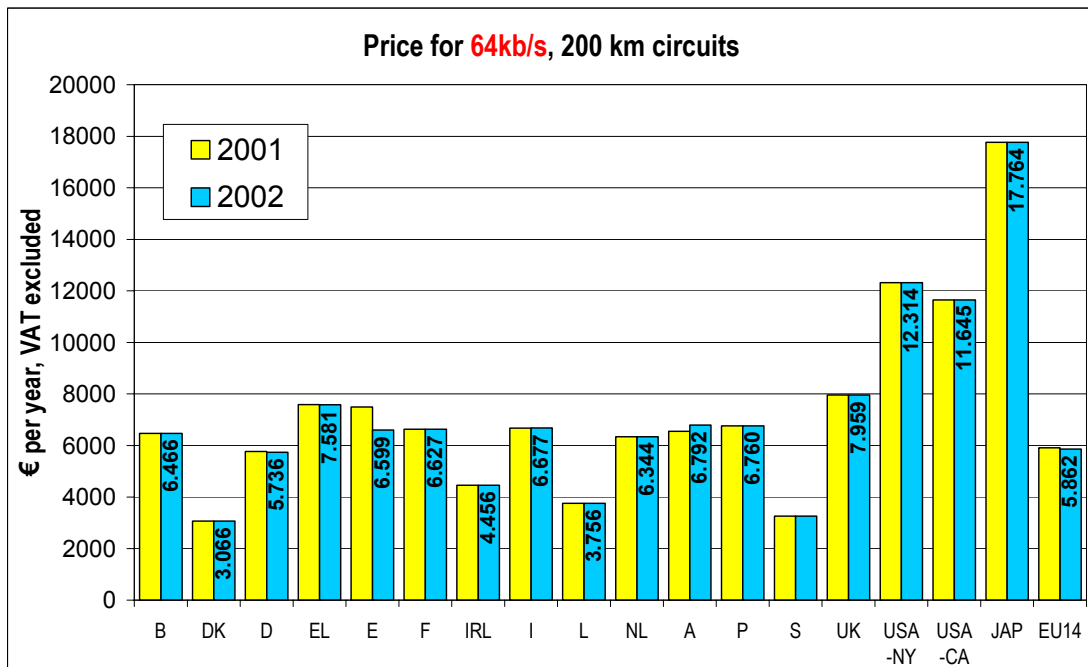
8.1.1. 64 Kbit/s

Chart 106



- Data for Finland not available.

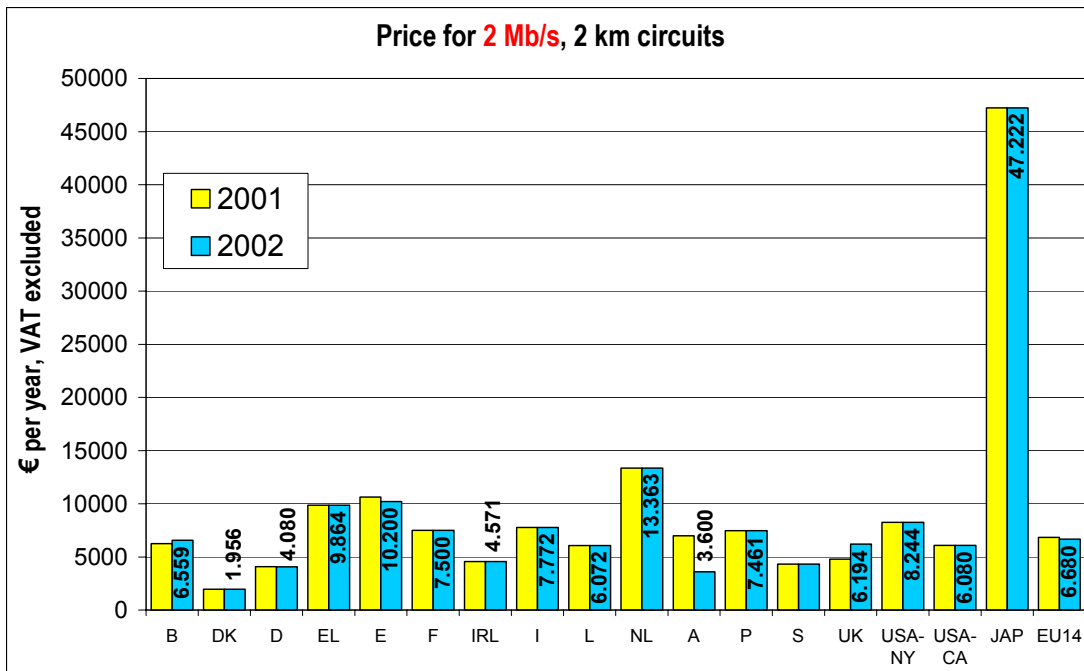
Chart 107



- Data for Finland not available.

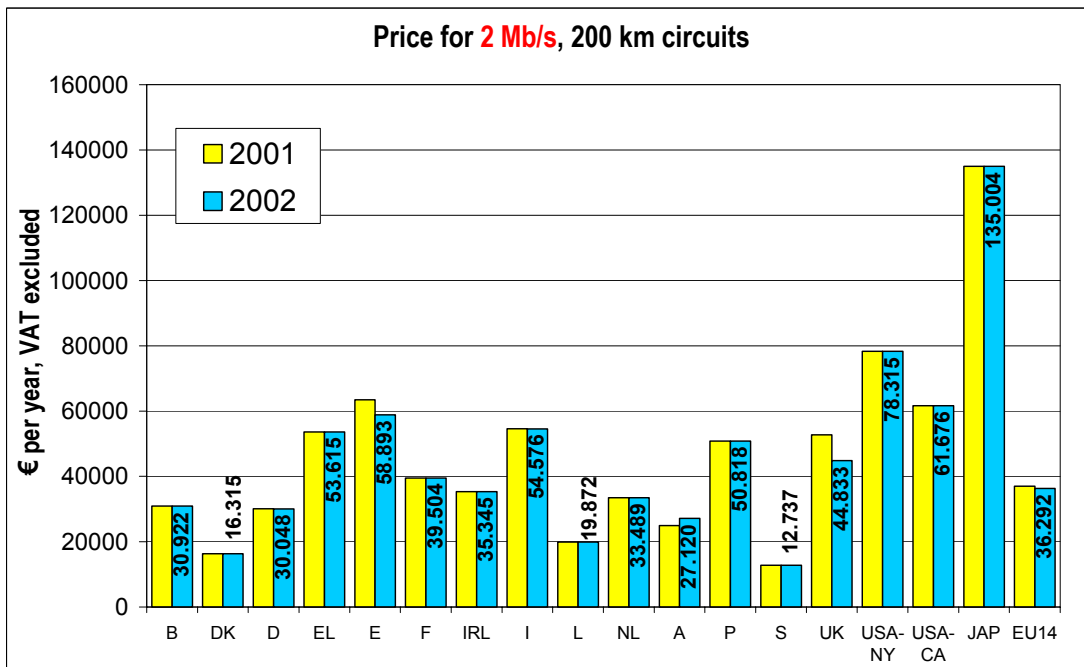
8.1.2. 2 Mbit/s

Chart 108



- Data for Finland not available.

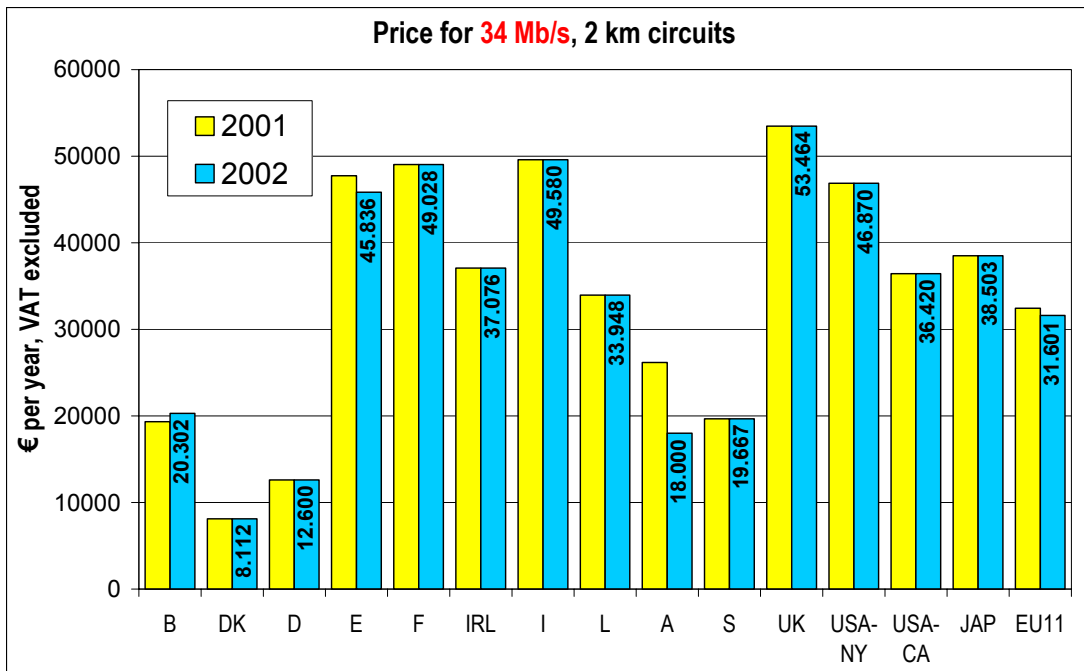
Chart 109



- Data for Finland not available.

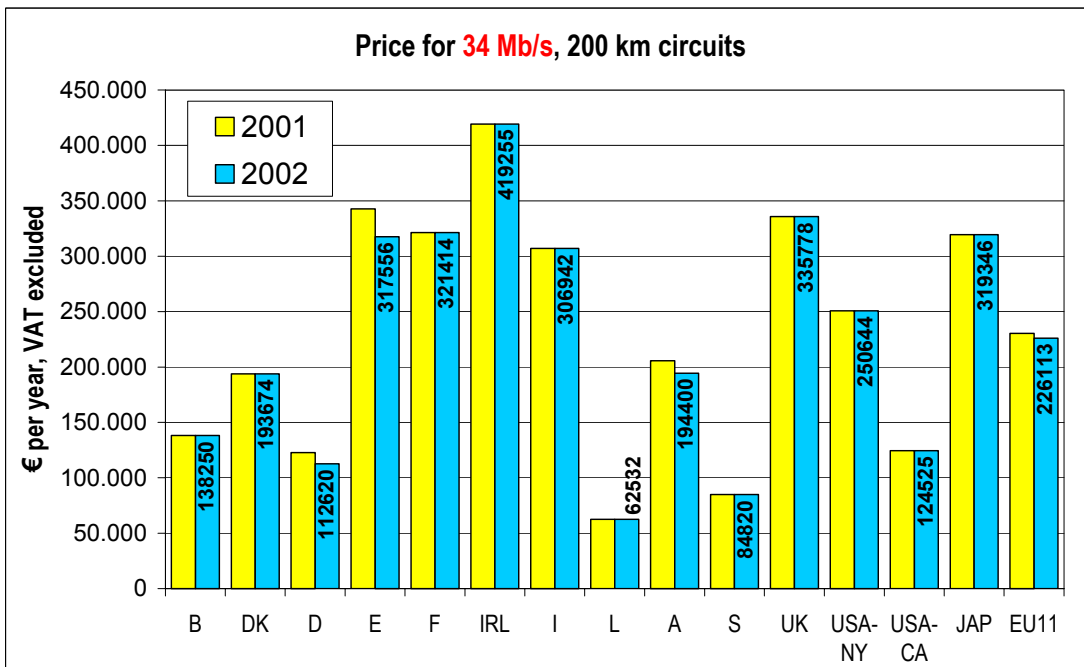
8.1.3. 34 Mbit/s

Chart 110



- Data for EL, NL, P and FIN not available.

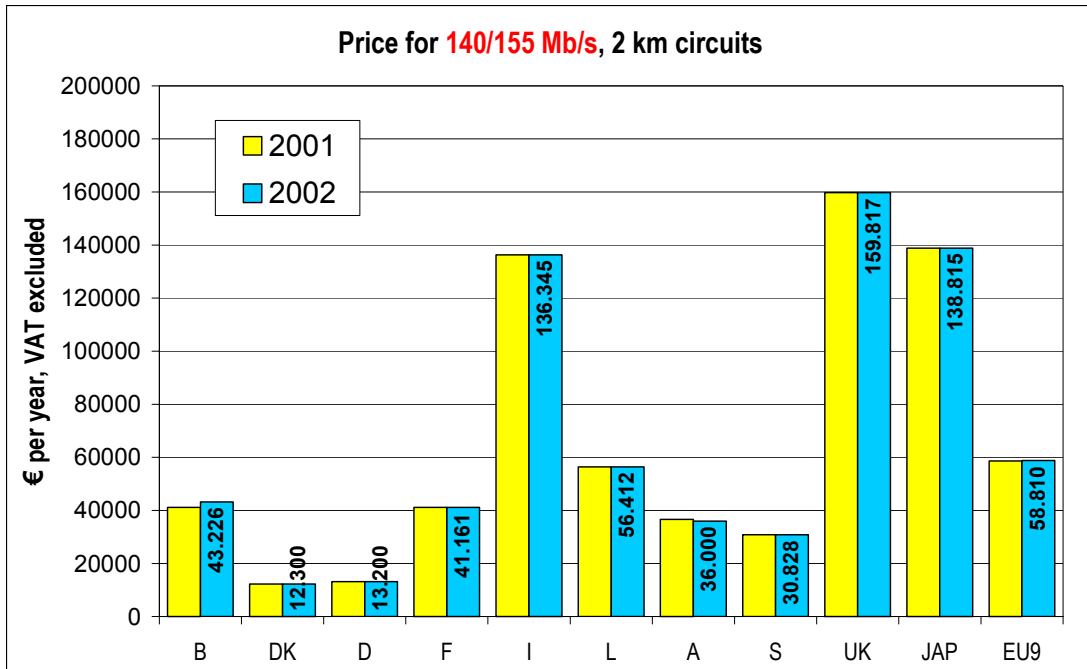
Chart 111



- Data for EL, NL, P and FIN not available.

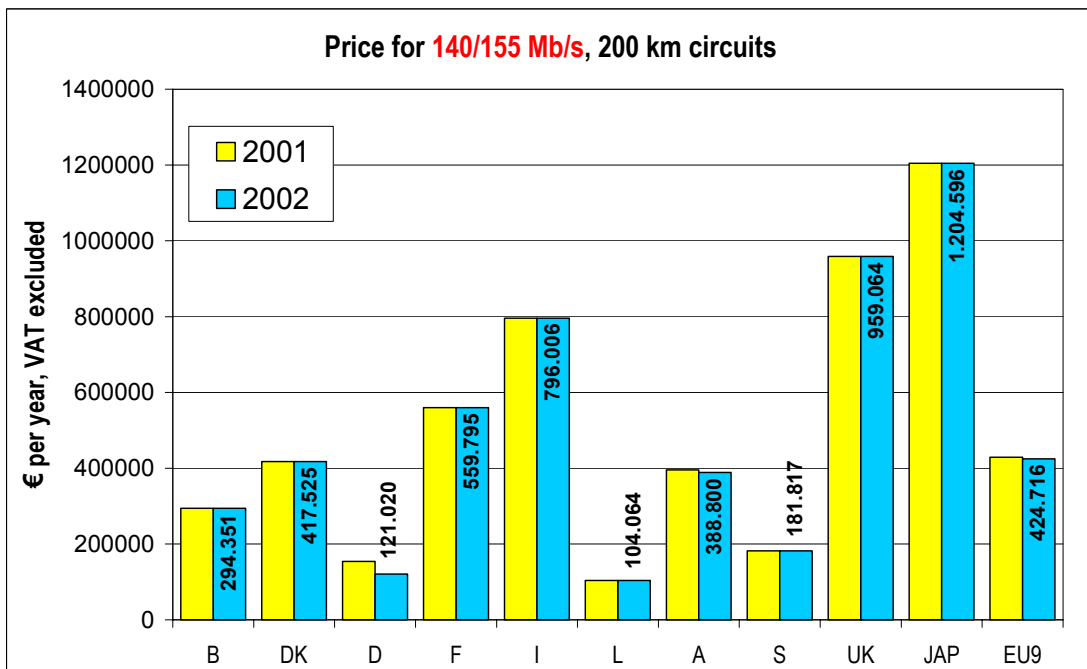
8.1.4. 155 Mbit/s

Chart 112



- Data for E, EL, IRL, NL, P and FIN not available.

Chart 113



Data for E, EL, IRL, NL, P and FIN not available.

8.2.NATIONAL LEASED LINES PRICE TRENDS (1 AUGUST 1998 - 1 AUGUST 2002)

Chart 114

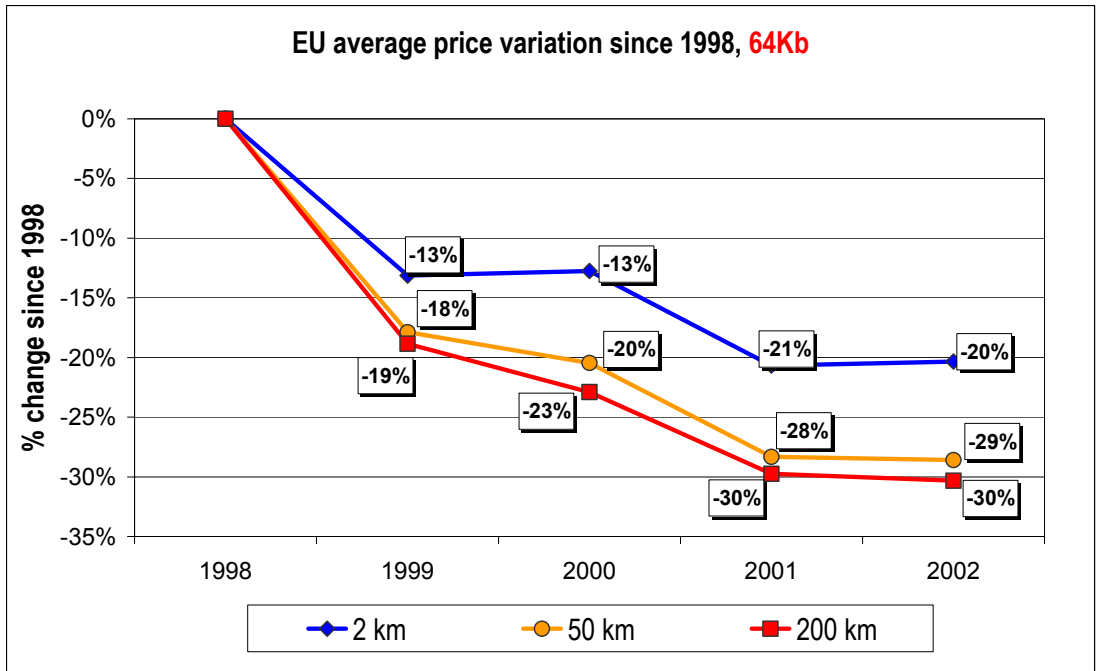


Chart 115

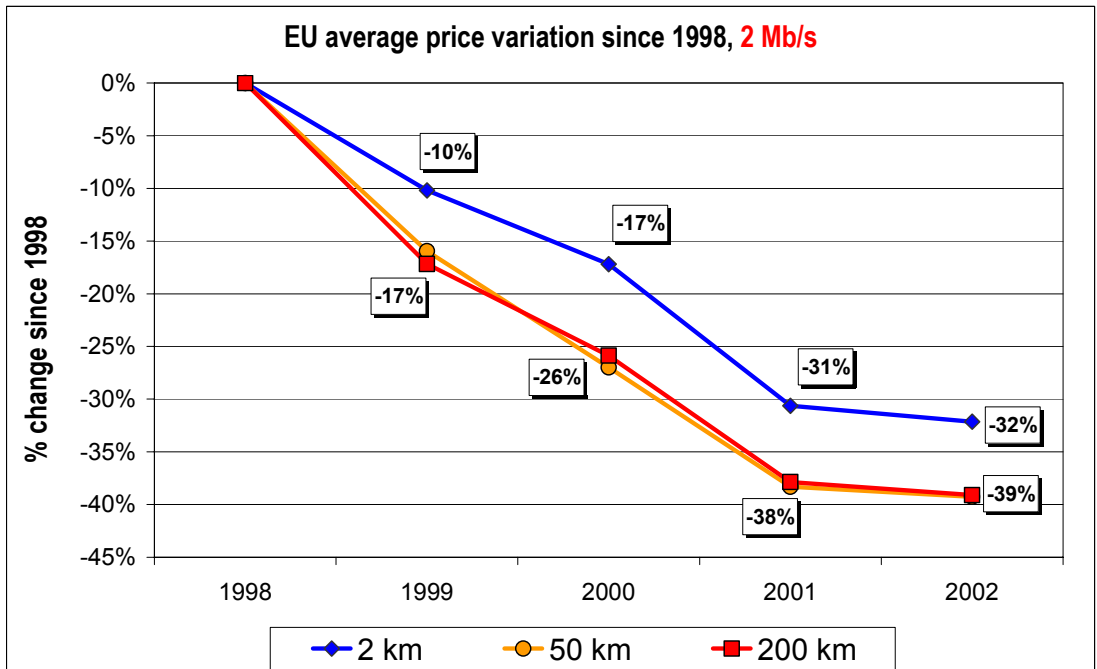
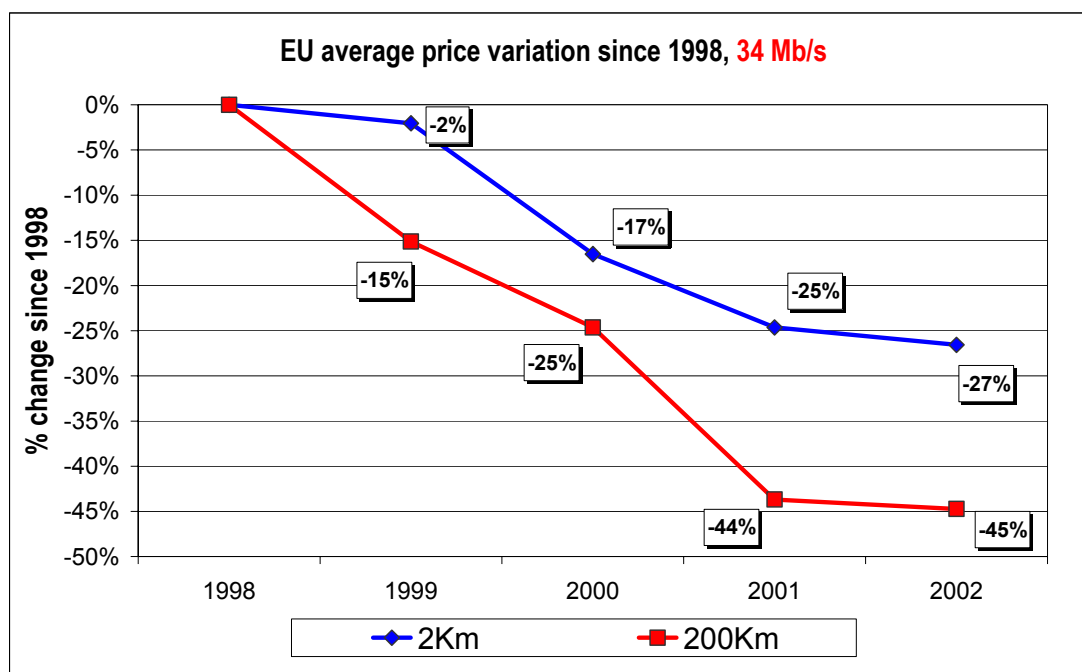


Chart 116



8.3. INTERNATIONAL LEASED LINES PRICES

This section examines the standard retail prices (annual rental) for international leased line services (half-circuits in each country) charged by the incumbent operators in each Member State. An analysis of the price development over the period from August 1998 to August 2002 is also included.

Three destinations are covered: international half circuits to the nearest EU country (hereafter “near EU”), to the most distant EU country (“far EU”) and to the USA.

Three types of circuits are considered: digital 64 Kbit/s, 2 Mbit/s and 34 Mbit/s. Given that price information on 155 Mbit/s international lines is only available for a few Member States, the analysis of these circuits is omitted.

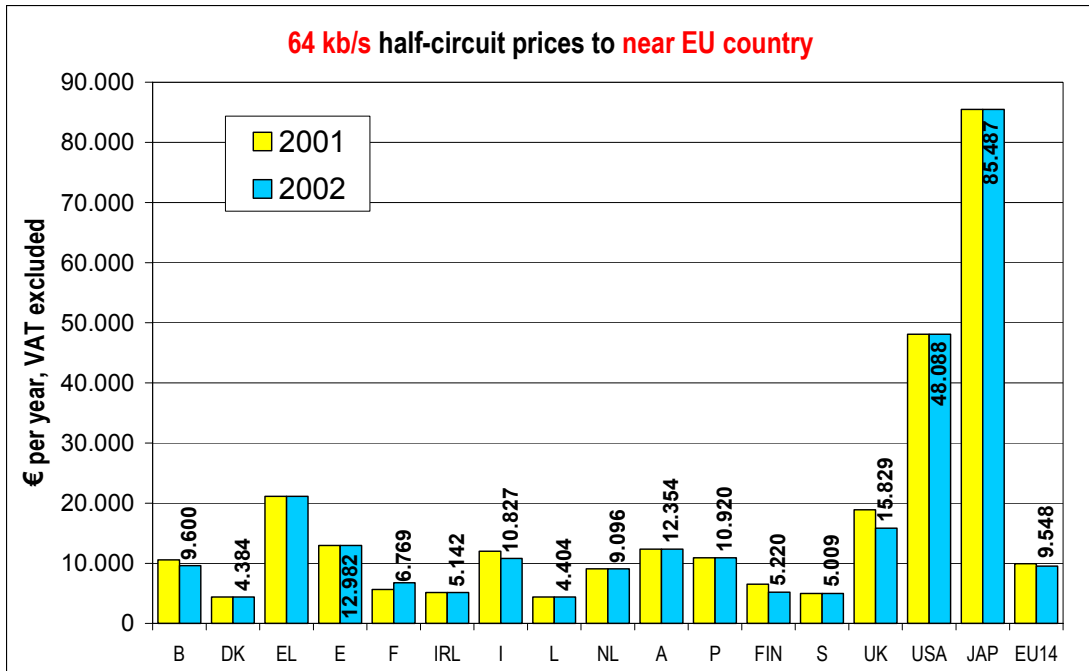
The data is presented with the following parameters:

- All charges in Euro per month
- Excluding VAT
- Germany is not included in the analysis because Deutsche Telekom does not publish prices for international half circuits.
- The years from 1998 are covered
- Variable / 1 year contract (shortest term available).
- AT&T prices are used for USA

Data refer to January for A, February for EL, F, I, NL and FI, April for B and DK, May for E, June for S and UK, and July for IRL, L, and P.

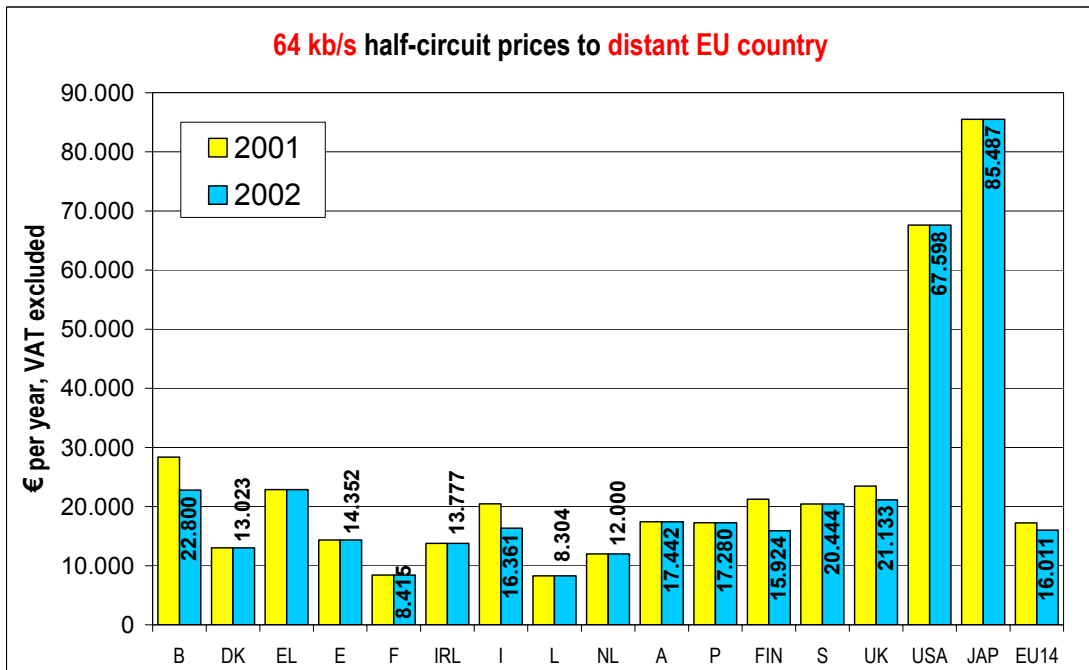
8.3.1. 64 Kbit/s

Chart 117



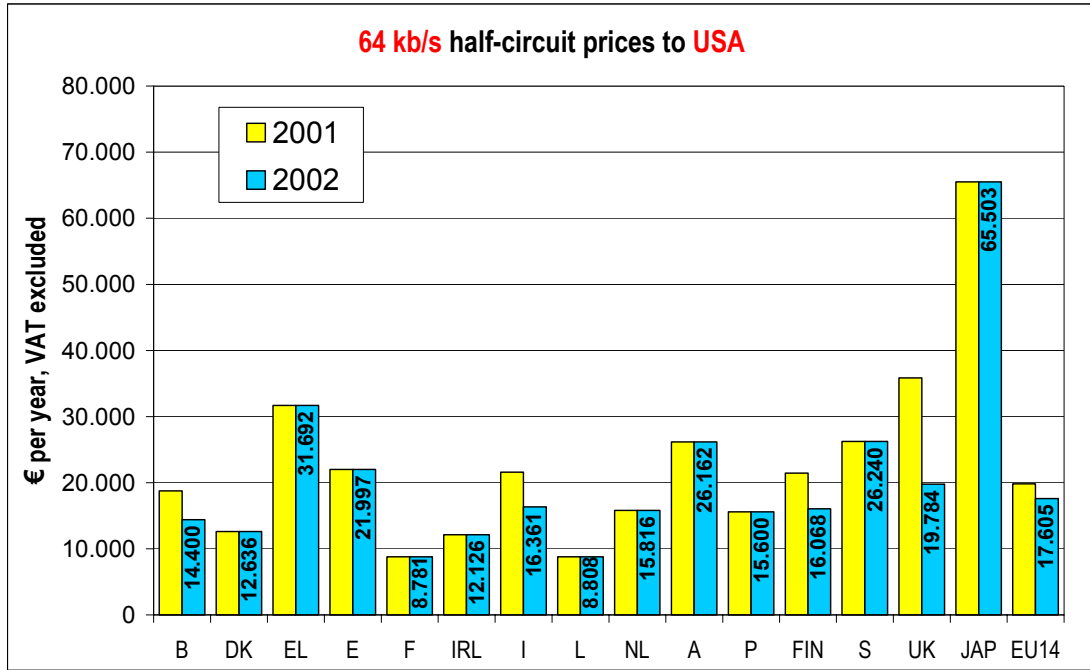
- Data for D not available.

Chart 118



- Data for D not available.

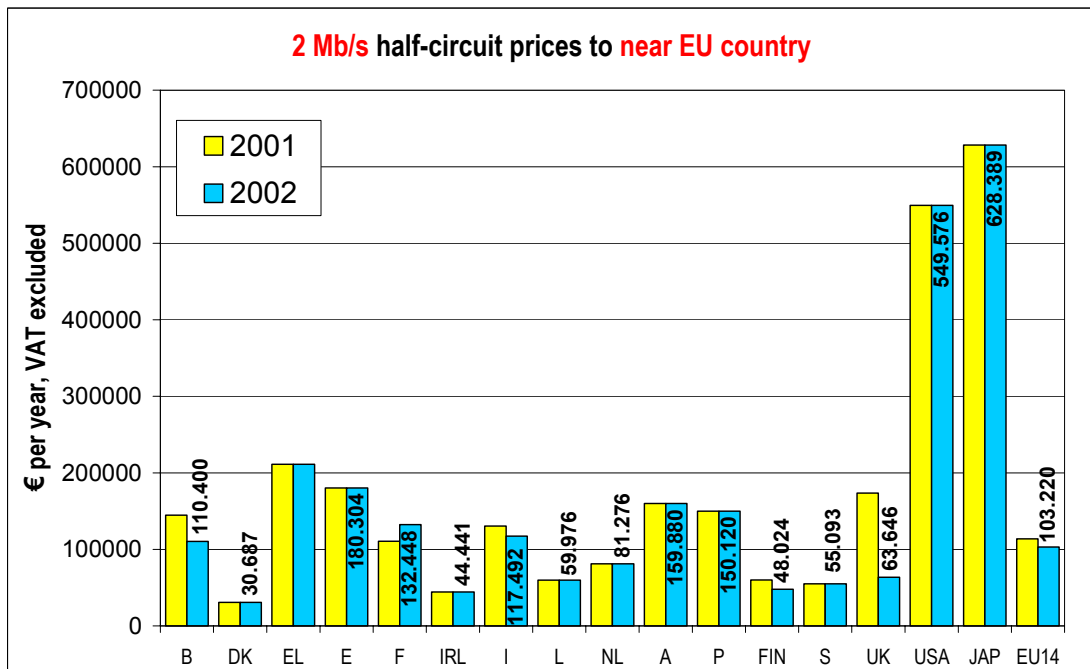
Chart 119



- Data for D not available.

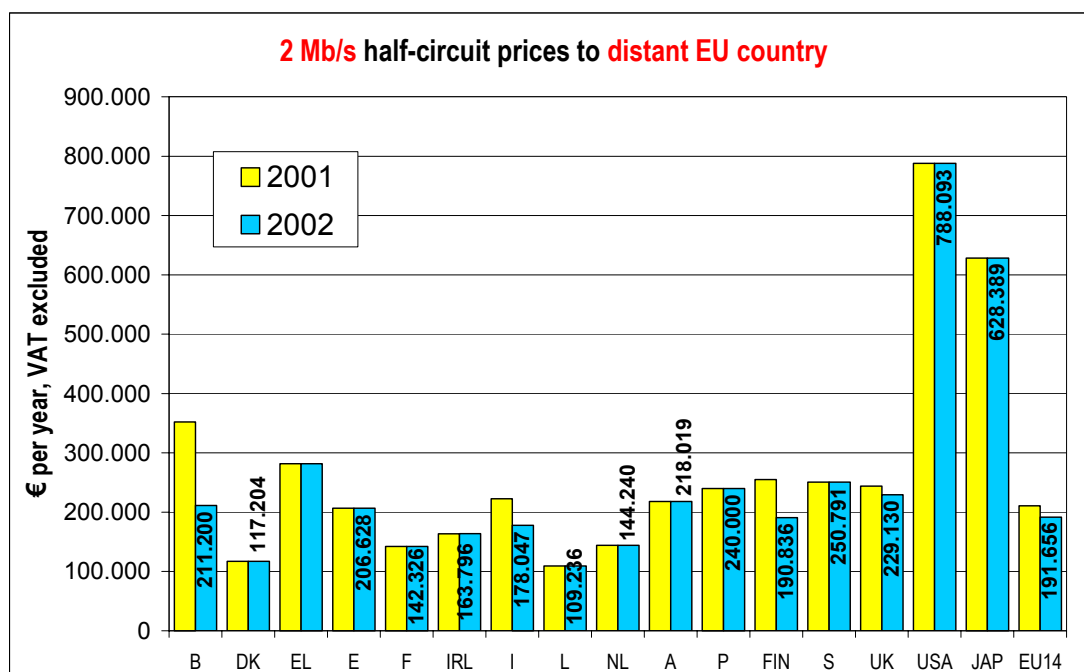
8.3.2. 2 Mbit/s

Chart 120



- Data for D not available.

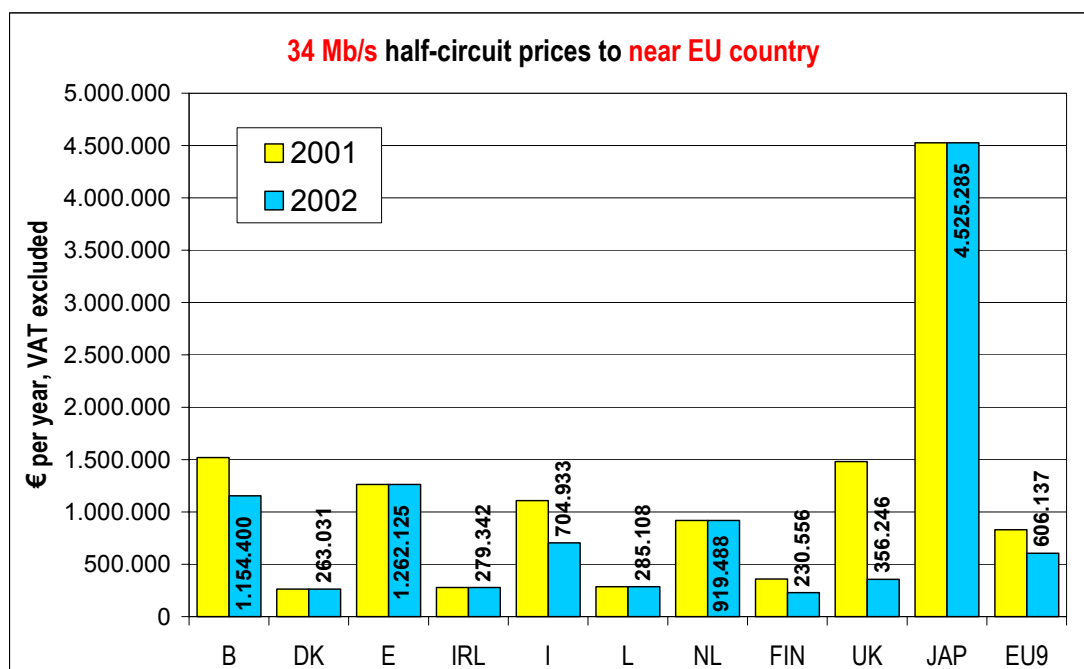
Chart 121



- Data for D not available.

8.3.3. 34 Mbit/s

Chart 122



- Data for D, EL, F, A, P and S not available.

8.4.INTERNATIONAL LEASED LINES PRICE TRENDS (1 AUGUST 1998 - 1 AUGUST 2002)

Chart 123

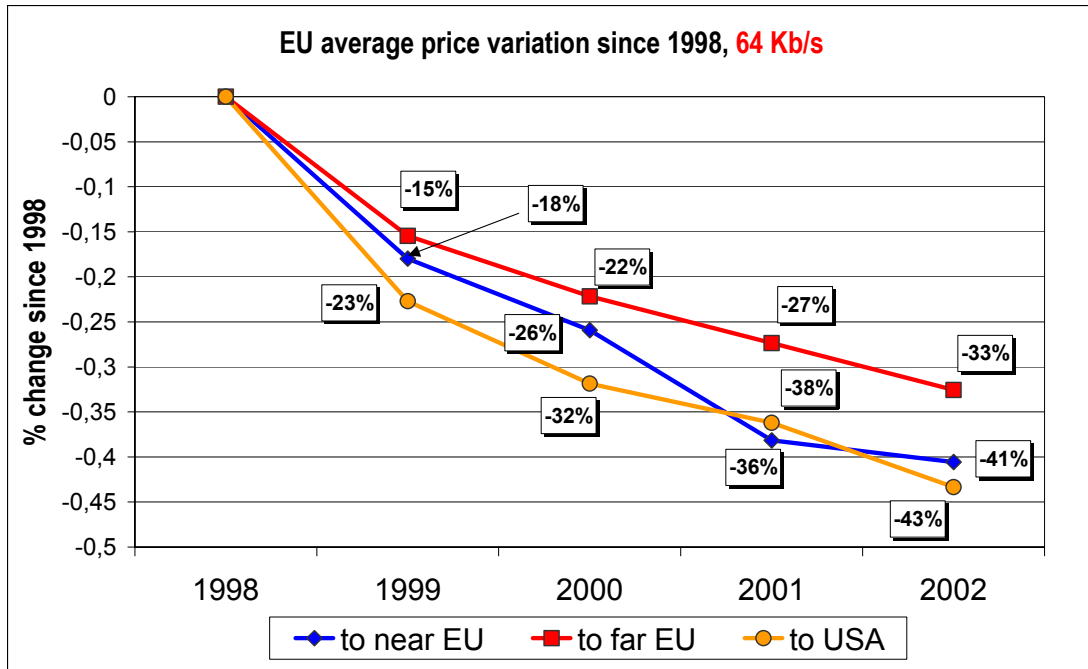
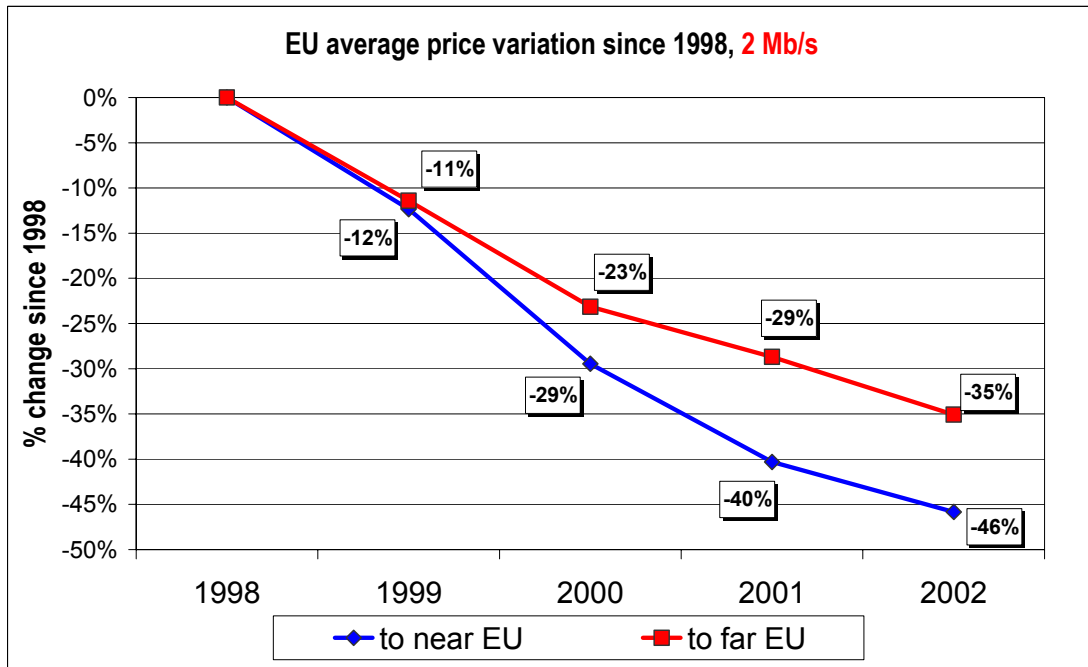


Chart 124



9 EXCHANGE RATES

This section explains the exchange rates used in Annexes I and II.

9.1. EXCHANGE RATE USED IN SECTION 6 ON INTERNET, SECTION 7 ON PUBLIC VOICE TELEPHONY TARIFFS AND SECTION 8 ON LEASED LINE TARIFFS.

Table 5 Exchange rates, national currency to Euro

	Exchange rate to euro <= 2001	Exchange rate to euro => 2002
	EURO	EURO
Austria	0.07267283	1
Belgium	0.02478935	1
Denmark	0.13430931	0.13430931
Finland	0.16818878	1
France	0.15244832	1
Germany	0.51129972	1
Greece	0.0029347	1
Ireland	1.26968004	1
Italy	0.00051646	1
Japan	0.00925189	0.00925189
Luxembourg	0.02478935	1
Netherlands	0.45378228	1
Portugal	0.00498798	1
Spain	0.00601012	1
Sweden	0.10794124	0.10794124
UK	1.62999185	1.62999185
USA	1.14495077	1.14495077

9.2. EXCHANGE RATE USED IN SECTION 1.5 ON ADMINISTRATIVE AND NUMBERING FEES

The exchange rate to Euro used in section 1.5 on administrative and numbering fees are the same as in table 5, except for the following:

	EURO
Denmark	0.1346058
Sweden	0.1146319
UK	1.4993537

9.3. EXCHANGE RATE USED IN SECTION 3 ON INTERCONNECTION AND SECTION 5.2 ON PRICES FOR LOCAL LOOP

The exchange rate to Euro used in section 3 on interconnection and section 5.2 on price for local loop are the same in table 5, except for the following:

	EURO
Denmark	0.13460581
Sweden	0.10729038
UK	1.59387950

ANEXO 3

Cuadro comparativo entre las tarifas de interconexión propuestas y las tarifas establecidas por el BTA (pula de Botswana):

Operator	Tarifas propuestas		Tarifas establecidas por el BTA	
	Tarifas propuestas por Mascom (en efecto durante el conflicto)	Tarifas propuestas por la BTC	Fecha efectiva hasta el 29/02/04	A partir del 01/03/04
Terminación en la red de la BTC:				
- Hora punta	24.0	35.0	15.0	11.0
- Hora no punta	19.1	25.0	12.0	8.8
Terminación en la red de Mascom:				
- Hora punta	96.0	75.0	85.0	75.0
- Hora no punta	76.9	58.0	68.0	60.0

Nota: 1,00 BWP = 0,20 USD