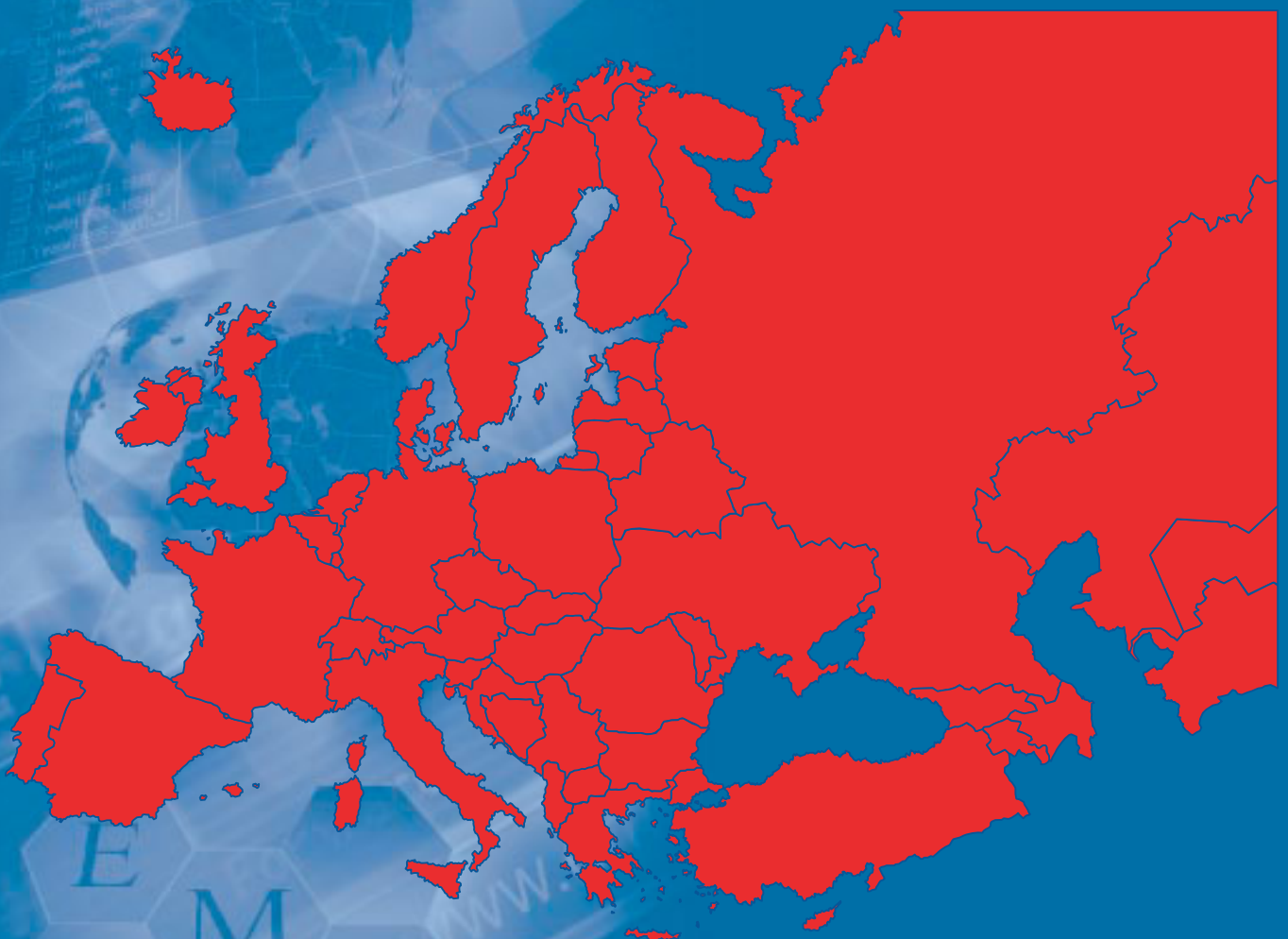


January 2004

European Mobile Communications Report

Detailed overview of the wireless markets of Eastern and Western Europe



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European Mobile Communications Report

Detailed overview of the wireless markets of Eastern and Western Europe

Report coverage

European Mobile Communications Report covers cellular market developments in the following countries:

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Ukraine
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Executive Summary

World cellular statistics

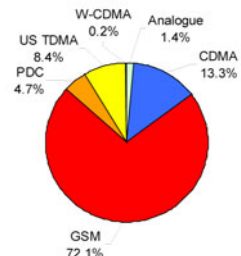
Region	Dec 2003
Africa	51,706,000
Americas	121,107,000
Asia-Pacific	534,915,000
Europe: Eastern	109,505,000
Europe: Western	354,201,000
Middle East	27,591,000
USA/Canada	155,617,000



Source: EMC World Cellular Database

Technology

Technology	Dec 2003
Analogue	19,604,000
CDMA	179,511,000
GSM	976,388,000
PDC	63,098,000
US TDMA	113,119,000
W-CDMA	2,922,000



Source: EMC World Cellular Database

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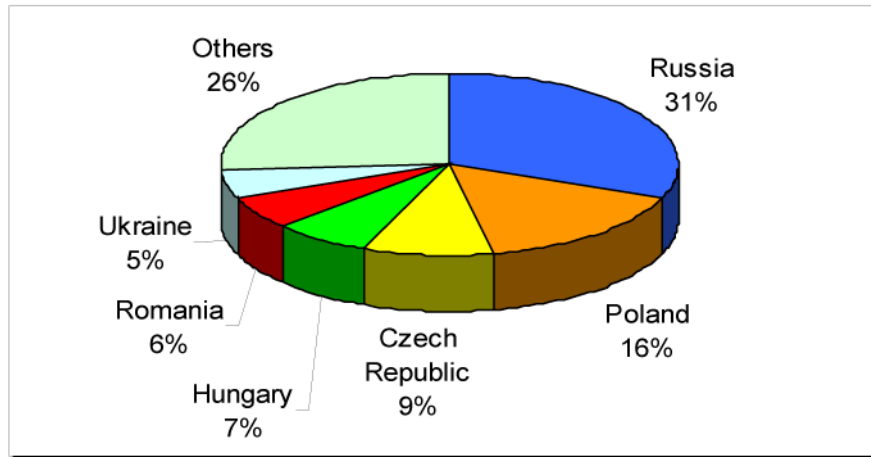
- Mobitel became the first operator to introduce 3G services to consumers in Central and Eastern Europe with the launch of its W-CDMA network in Slovenia on 12 December 2003. Although Mobitel still describes the network as 'pre-commercial', the operator is already offering the service to all of its postpaid subscribers.
- On 12 January 2004 T-Mobile upped the stakes in terms of voice pricing in Germany by announcing that it will be introducing a new bucket tariff range from 2 February 2004 under the brand name 'Relax'. Bucket tariffs have proven to be very successful in markets like the UK and, following the adoption of the concept by Germany's leading operator, it would seem to be only a matter of time before Vodafone and O2 follow suit.
- As 3G licence-obligation deadlines for the end of 2003 approached, Europe witnessed its first cases of spectrum trading in Austria and Sweden. Negotiations on the possibility of allowing spectrum trading in Italy, Switzerland and Germany are also ongoing.
- With the commercial launch of W-CDMA technology in Spain drawing closer, the Spanish telecoms ministry is to update the UMTS licence conditions to allow network sharing. The move is likely to enable all 3G licence holders to launch W-CDMA services before the end of 2004.
- On 18 December 2003 the Swiss Federal Communications Commission (ComCom) announced that it had decided in principle to award two GSM licences to In&Phone and Tele2. The licences are expected to be granted by February 2004.
- Eircom's strategy for re-entering the mobile services market in Ireland appears to have shifted from acquisition to MVNO, with sources confirming the company has contacted at least one of the existing operators to ascertain their willingness to allow the former incumbent to piggyback on their network.



Key Market Indicators

In Q3 2002 Russia's share of Eastern European subscribers stood at 20.4%, but by the end of Q3 2003 it had surpassed the 30 million subscriber mark, giving it a 31% share of the subscribers in Eastern Europe. Over the same period Poland increased its subscriber base from 12.6 million to 16.3 million. By the end of September 2003 Eastern Europe reached 100.7 million subscribers.

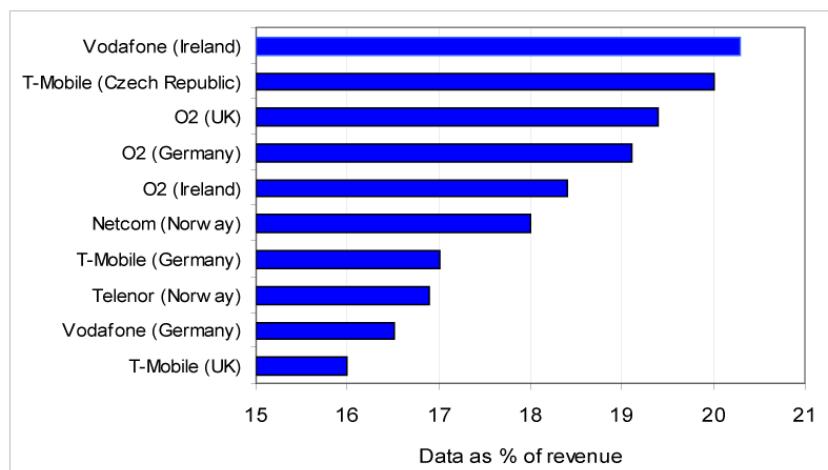
Chart 1: Eastern European subscribers - Q3 2003



Source: EMC World Cellular Database

T-Mobile in the Czech Republic was the first European operator to pass the 20% mark when it reached 20.2% data as a percentage of revenue for Q4 2002. Since this date T-Mobile's Czech operation has sustained the revenue generated from data at or above 20%. Vodafone Ireland has also generated more than 20% of its revenues from data since Q1 2003, and since Q2 2003 it has been the leading European operator in terms of data revenue. O2 in Germany also hit 21% in Q1 2003 but has since tailed off slightly.

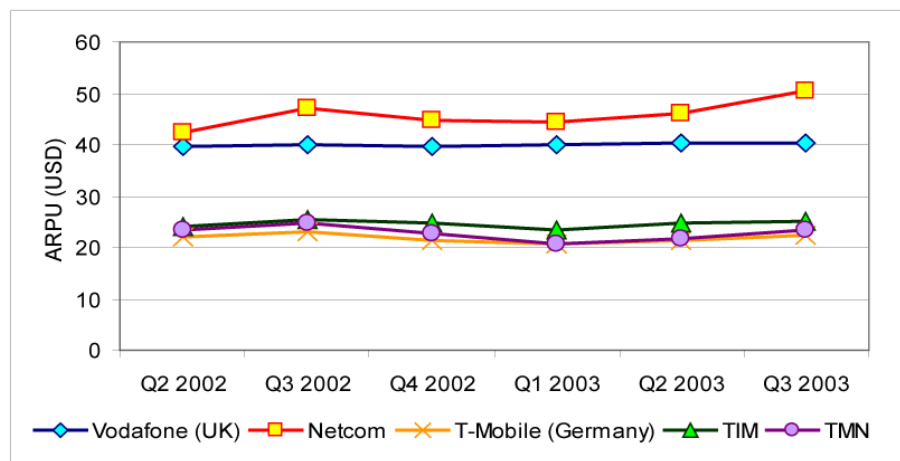
Chart 2: Data as a percentage of revenue



Source: EMC World Cellular Data Metrics

ARPU showed an overall increase in the mature markets of Western Europe, helped by the increased use of data services. Vodafone commented in late November 2003 that its Live! subscribers' ARPU was typically 7% higher than before the service was launched. According to EMC data, while ARPU in 2002 was generally stable compared with 2001, it was up by around 3% in H1 2003 compared to the same period of 2002 and by more than 5% for Q3.

Chart 3: Blended ARPU – Selected European operators

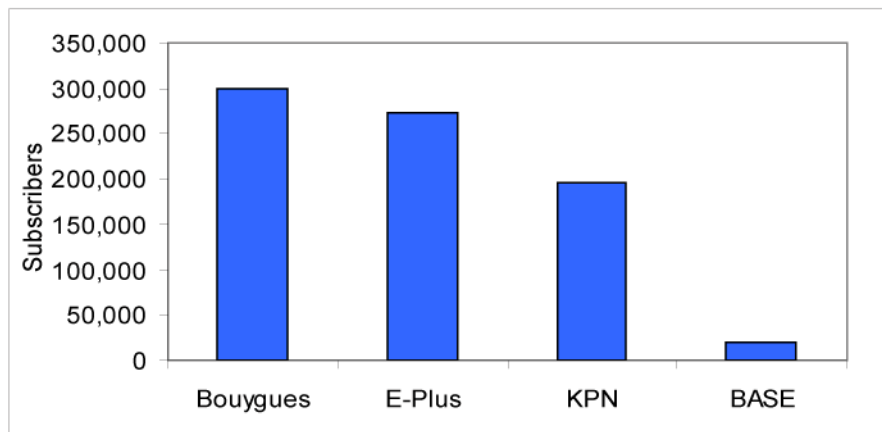


Source: EMC World Cellular Database



Both Telefonica Moviles and Wind launched i-mode during 2003, based on licensing agreements with DoCoMo, bringing to six the number of European operators that have deployed the service: Bouygues Telecom, KPN, Wind, E-Plus, Telefonica Moviles and BASE. Excluding Telefonica Moviles, whose numbers have yet to be disclosed, there were 790,000 i-mode subscribers across Europe by the end of September 2003, according to EMC data.

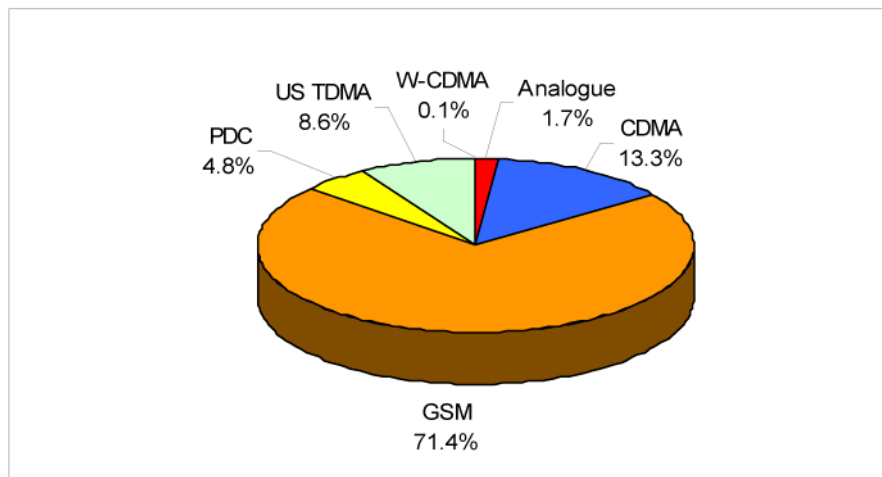
Chart 4: European i-mode subscribers, September 2003



Source: EMC World Cellular Database

GSM increased its share of global mobile subscribers to 71% by the end of September 2003 compared to just under 70% at the start of the year. EMC estimates that yearly net GSM additions amounted to approximately 190 million in 2003, more than the total number of CDMA subscribers at the end of December 2003. EMC forecasts that the one billionth GSM subscriber will be achieved before the end of Q1 2004. W-CDMA subscribers, which numbered 1.71 million at the end of September 2003, still represent only around 0.1% of the global subscriber base.

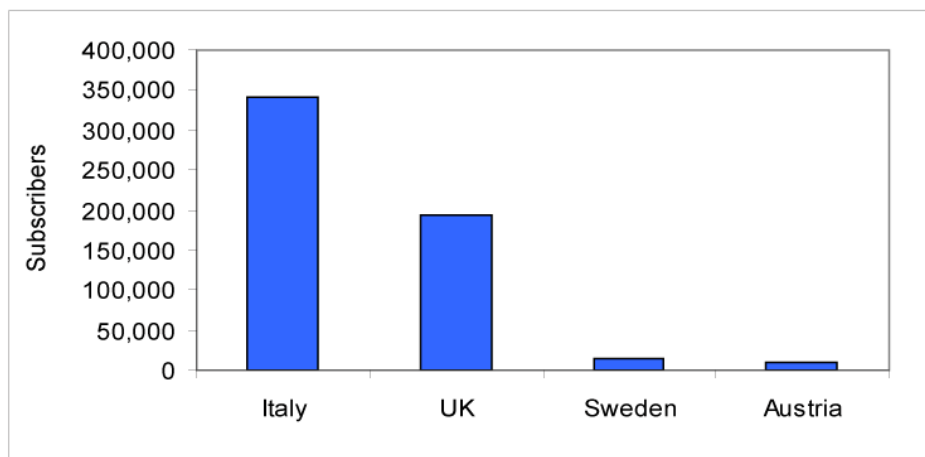
Chart 5: Worldwide subscribers by technology



Source: EMC World Cellular Database

W-CDMA subscribers in Europe totalled only around 560,000 at the end of September 2003, according to EMC data, with Hutchison's networks in Italy and the UK accounting for the vast majority. In the UK, Hutchison had around 195,000 subscribers, well short of its year-end target of one million which it later admitted it would not achieve. Hutchison was also operating networks in Austria and Sweden by September and launched in Denmark in October.

Chart 6: Europe W-CDMA subscribers, September 2003



Source: EMC World Cellular Database



EMC Focus Reports

T-Mobile launches offensive with bundled tariff plans

On 12 January 2004 T-Mobile upped the stakes in terms of voice pricing in Germany by announcing that it will be introducing a new bucket tariff range from 2 February 2004 under the brand name 'Relax'. Until now only E-Plus has been offering the bucket tariff concept in Germany with its Time&More tariff range. Bucket tariffs have proven to be very successful in markets like the UK and, following the adoption of the concept by Germany's leading operator, it would seem to be only a matter of time before Vodafone and O2 follow suit.

Table 1: T-Mobile 'Relax' tariff plans

Tariff	Monthly subscription (EUR)	Voice minutes included	Includes on-net voice and calls to fixed line network?	Includes off-net voice calls?
Relax 50	15	50	YES	NO
Relax 100	25	100	YES	NO
Relax 200	50	200	YES	YES
Relax 500	100	500	YES	YES

Source: T-Mobile

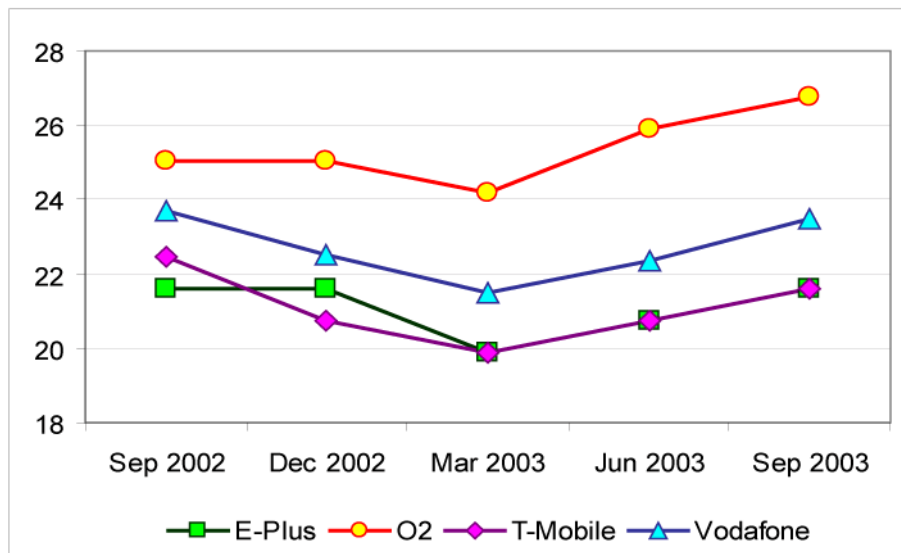
All of the above monthly subscription rates for Relax are reduced by EUR 5 if a customer wishes to use his own mobile phone rather than receiving a subsidised handset from T-Mobile. For example, the Relax 50, which includes 50 voice minutes per month, would be available for EUR 10 per month. T-Mobile will be offering the Relax tariffs alongside the current Telly tariffs. Customers can switch from the Xtra tariffs at any time for free and Tell tariff users are able to make the switch for free until 30 June 2004. Customers will be able to switch between the different Relax tariffs at any time. The tariff options More Weekend, WorldClass and the GPRS options will also be available to Relax customers.

Why has T-Mobile introduced the bucket tariff concept?

In the UK, where bucket tariffs are well established, the ARPU of the top four operators stood at USD 33.32 (an average of the ARPU figures as stated by the operators) in September 2003 compared with USD 23.36 in Germany. Bucket tariffs tend to increase consumers' perception of value for money and can lead to an increase in minutes of use and thus increase ARPU. For this reason it is surprising that T-Mobile has only now decided to introduce inclusive minute packages in Germany. The most probable reason why T-Mobile has decided to launch the Relax tariff range now is that it wants its customers to become familiar with the concept that it intends to use when it commercially launches W-CDMA services. The introduction of the Relax tariff range is also in line with T-Mobile's focus during 2003 on increasing its postpaid subscriber base in an attempt to increase ARPU. T-Mobile has highlighted that many T-Mobile prepaid customers buy EUR 15 vouchers, which entitle them to about 30 minutes of call time during the day. In contrast, the Relax 50 plan costs EUR 15 per month and includes 50 voice minutes.



Chart 7: German operators' ARPU (USD)



Source: EMC World Cellular Database

Reaction of T-Mobile's competitors

In the case of E-Plus, its Time&More tariff plan still looks like a competitive offer when compared with T-Mobile's forthcoming Relax. However, it is likely that E-Plus will further simplify the presentation of its Time&More tariff plan in response to the T-Mobile's launch of Relax. At present Time&More customers are still faced with needless explanations of monthly subscription fees and minute packages within which calls are charged at EUR 0.15 per minute. In contrast, the T-Mobile Relax plan simply states how many voice minutes are included in the monthly subscription.

Table 2: E-Plus Time&More tariff plans

Minute package (voice minutes included)	Monthly subscription (EUR)	Cost of additional voice minutes	
		Peak	Off-peak
20 minutes	12.95	0.50	0.20
60 minutes	18.95	0.50	0.20
120 minutes	27.95	0.50	0.20
240 minutes	53.95	0.20	0.20

Source: E-Plus

E-Plus first introduced its Time&More tariff range in May 2000. Each of the packages includes on-net calls, off-net calls and calls to land lines. The contracts are for a minimum of 24 months. Except for the 20 minute package, all the minutes not used in a given month roll over to the following month (just for one month). In August 2003 E-Plus introduced the Time&More Aktions Tariff, which includes 1,000 voice minutes at weekends for on-net and land line calls for an additional EUR 5 per month.

Vodafone and O2 have not yet indicated that they will be introducing bucket-style voice plans but instead stress the competitive nature of their current tariff plans. Vodafone has extended its Vodafone-SunSpecial offer, which is similar to a bucket plan but still retains the distinction between peak and off-peak minutes, until 31 March 2004 due to its popularity. The day after T-Mobile's 'Relax' announcement Vodafone announced the introduction of the Vodafone-HappyWocheWende offer



(an option for weekend voice calls). This will surely prove to be a popular product, although it is not the boldest of moves by Vodafone as E-Plus has been successfully offering an identical option since August 2003. On 15 January 2004 O2 announced incentives to attract customers to its existing postpaid plans as well as a campaign to encourage customers to switch operator to O2. On 22 January 2004 O2 also announced a promotion to attract people to its O2 LOOP prepaid offer.

Table 3: Vodafone-SunSpecial tariff plan

Connection fee	Minimum monthly expenditure	On-net voice calls (price per minute)		
		Peak	Off-peak	Weekends
24.95 (a)	14.95	0.39	0.19	0.19

Land line voice calls (price per minute)			Off-net voice calls (price per minute)		
Peak	Off-peak	Weekends	Peak	Off-peak	Weekends
0.49	0.19	0.09	0.79	0.49 (b)	0.49 (b)

Source: Vodafone
All prices are in euros.
Peak times are Monday to Friday 07:00-18:00. Weekends are from Fridays 20:00 to Sundays 24:00. Off-peak is all other times.
(a) There is no connection fee for Vodafone CallYa or Vodafone-Sun customers.
(b) Peak time and weekend calls to T-Mobile are charged at 0.39 per minute.

Vodafone announced on 5 January 2004 that it would be continuing its Vodafone-SunSpecial offer until 31 March 2004. Originally Vodafone introduced the offer in September 2003 and it was to last until 30 November 2003. The Vodafone-SunSpecial offer differs from the Vodafone-Sun tariff plan in that SunSpecial subscribers receive a subsidised handset and agree to spend a minimum of EUR 14.95 per month for the length of the 24-month contract. The call charges are the same.

Vodafone-HappyWochenende

On 14 January 2004 Vodafone announced its Vodafone-HappyWochenende offer, whereby customers receive 1,000 voice minutes per month, which can be used only at the weekend for on-net calls and calls to land line numbers for EUR 5 per month. Customers can apply for the service until 31 March 2004. Postpaid customers have to sign a contract for a minimum of six months and they receive the first month for free. After six months the contract can be terminated with a month's notice. The service is also available for prepaid customers but only for a promotional period between 1 February and 31 March 2004. Postpaid customers can also sign up for the service for these two months if they do not want to commit to the six-month contract.

O2 postpaid promotion

On 15 January 2004 O2 announced a promotional campaign whereby new customers who sign up for a 24-month contract from 19 January 2004 on the Genion, Select or Starter tariff plans receive the first three months for no monthly subscription fee. Customers who sign a contract for a Profi tariff plan are charged half the monthly subscription fee for the first three months. The promotion is due to finish on 18 March 2004. As part of the campaign O2 is also offering postpaid customers a range of handsets at reduced prices, including the Nokia 3200 for EUR 9.95 and the O2 X1 for EUR 49.95. O2 is also heavily promoting the fact that customers of rival operators can switch to O2 and take their existing number with



them. O2 is also offering the incentive of EUR 25 credit to those who do make the switch.

O2 prepaid promotion

O2 is also promoting its O2 LOOP prepaid package. Between 23 January and 29 February 2004 anyone who buys an O2 LOOP prepaid package will receive a EUR 5 voice credit per month for two years. The O2 LOOP package also comes with an initial EUR 10 credit and the number of free SMS messages per month depends on the handset bought. The offer is available only to customers who buy a new handset with the LOOP prepaid package.

Are bucket tariffs the way forward?

Despite T-Mobile very provocatively announcing the launch of its new Relax plans as a 'tariff offensive', its rival operators have not yet responded with the same level of aggression. They seem content to pursue their marketing strategies as planned and to wait and see just how well T-Mobile's Relax does when it is launched in February. However, the inclusive minutes concept does seem likely to take off in Germany. German customers are already accustomed to the notion of inclusive data packages and the German operators are likely to incorporate inclusive voice minutes in their future 3G tariff plans. Vodafone would only need to get rid of the distinction between peak and off-peak times and its Vodafone-SunSpecial offer would become an inclusive minutes tariff plan.

3G spectrum trading emerges in Europe

As 3G licence-obligation deadlines for the end of 2003 approached, Europe witnessed its first cases of spectrum trading. In December 2003 mobilkom austria bought 3G Mobile, thus acquiring its Austrian W-CDMA licence, and in Sweden the Tele2 and TeliaSonera consortium agreed to buy Orange Sweden's 3G licence. Austria's 3G Mobile was an affiliate of Telefonica Moviles and the Spanish operator is also the driving force behind negotiations on possible spectrum trading in Italy, Switzerland and Germany as it endeavours to pull out of these markets.

Austria: Telefonica Moviles sells 3G Mobile to mobilkom austria

The first case of spectrum trading occurred in Austria in December 2003. The Austrian regulator, RTR GmbH, gave the go-ahead on 17 December 2003 for mobilkom austria to acquire 3G Mobile Telecommunications GmbH, the Austrian affiliate of Telefonica Moviles and a W-CDMA licensee. The purchase was announced on 23 December 2003. It meant that mobilkom austria had acquired an additional two spectrum blocks (9.8MHz altogether), taking its total W-CDMA spectrum to 19.8MHz. The Austrian regulator attached the condition that mobilkom austria must sell one of the W-CDMA spectrum blocks obtained from 3G Mobile by 31 January 2005 in order to protect competition. This will leave mobilkom austria with at least 14.8MHz of W-CDMA spectrum. The amount that Telefonica Moviles received for the transaction has not been disclosed.

The Austrian W-CDMA licence conditions stipulated that operators must have launched a commercial W-CDMA network with at least 25% population coverage by the end of 2003. To this end T-Mobile, Connect Austria and tele.ring each launched their networks in December 2003. 3G Mobile was the only 3G licence holder that failed to meet the deadline in Austria, following the decision taken by



Telefonica Moviles in July 2002 to freeze its 3G activities outside Spain. The licence conditions stipulated that failure to meet the end of 2003 deadline would lead to the regulator confiscating the licence. However, mobilkom austria's W-CDMA network has about 50% population coverage and the Austrian regulator accepted that mobilkom austria could therefore fulfil both its own W-CDMA licence obligations and those of 3G Mobile by purchasing 3G Mobile and combining the licences.

Sweden: TeliaSonera and Tele2 consortium agrees to buy 3G licence from Orange Sweden

The Austrian decision on spectrum trading was closely followed in Sweden on 29 December 2003 by the announcement that Svenska UMTS-nat AB, jointly owned by TeliaSonera and Tele2, had agreed with Orange Sverige AB to purchase its 3G licence. According to TeliaSonera, the licence will be bought for SEK 50 million. The Swedish regulator, the National Post and Telecom Agency (PTS), is widely expected to give its consent to the deal. However, there remains the stumbling block of Orange Sweden's estimated SEK 1 billion obligation to Sweden's two other 3G licensees, Vodafone and Hi3G, in the infrastructure joint venture 3G Infrastructure Services. TeliaSonera and Tele2 are stating that the deal with Orange does not involve Svenska UMTS-nat having to meet this hefty financial obligation to their rivals. Orange is not at present making any comment on this, however, and has stated simply that it expects the deal to be concluded by the end of January 2004.

Orange Sweden decided to shelve its W-CDMA network roll-out plans at the end of 2002 due to the regulator's refusal to compromise on its strict roll-out requirements. A very large fine was looming for Orange due to non-compliance with the licence regulations, which stipulated that W-CDMA licensees must cover a population of 8.86 million people by the end of 2003. This represents almost 100% of the Swedish population and at least 30% of Sweden's population had to be covered by each of the licensee's own 3G networks by the end of 2003 while the rest of the coverage could be achieved as a result of cooperation between the 3G licence holders. The strict licence conditions were making it seem very unlikely that Orange would find a buyer for its 3G licence. However, the introduction of the new EU law on electronic communication meant that Swedish operators in effect had until the middle of 2005 to meet the population coverage requirements. This was because the law gives operators a reasonable time limit to iron out problems with their infrastructure before any non-conformance penalties can be imposed. This new law therefore made the purchase of Orange Sweden's W-CDMA licence a very attractive proposition for Svenska UMTS-nat AB. The consortium already owns a W-CDMA licence and has been constructing its own W-CDMA network but, as it is a joint operation between Sweden's two leading GSM operators, is in need of extra spectrum for its W-CDMA network.

Svenska UMTS-nat has stated that it will expand its network in Sweden's metropolitan areas in order to meet the 30% coverage requirement for Orange Sweden's licence. According to TeliaSonera the consortium expects to spend less than SEK 200 million on the extra network build-out and it expects that this will be more than compensated for by the efficiency gains that are realised. Svenska UMTS-nat has stated that the costs for the licence and the extra build-out will be covered by its existing loan facility.



Germany: Mobilcom hands back 3G licence but Quam refuses to give up without a fight

According to German 3G licence regulations, operators were required to have constructed W-CDMA networks with at least 25% population coverage by the end of 2003. In May 2003 Mobilcom sold its W-CDMA network infrastructure to E-Plus and on 23 December 2003 it voluntarily handed its licence back to the German regulator, announcing that it would concentrate on operating as a service provider for W-CDMA networks. Licence conditions would have prevented it from operating as a service provider while it still held a W-CDMA licence.

Group 3G (Quam), which is owned 57.2% by Telefonica Moviles and 42.8% by Teliasonera, has no W-CDMA network and is also required to hand back its licence. However, Group 3G is now angling for the right to sell its licence, or at least to claim compensation. The operator is contesting the regulator's right to confiscate its licence, citing the licence conditions that state that the population coverage requirement for the end of 2003 is applicable only if the relevant technology is available on the market. Quam claims that such technology is not available, pointing to the fact that even T-Mobile and Vodafone have still been unable to provide suitably stable W-CDMA networks and the handset manufacturers have also failed to deliver W-CDMA handsets in the required quantities. It would seem that this line of argument can at best merely win Quam an extension to the population coverage deadline and thus give it more time to negotiate with the regulator on a possible sale or compensation claim.

mobikom austria's purchase of 3G Mobile in Austria has demonstrated that negotiations with the regulators can lead to greater flexibility in the interpretation of licence conditions. However, the German regulations seem likely to prove much more of an obstacle to Telefonica. It would seem that Quam can expect at best some form of compensation. This might well be the hope of Mobilcom too, as it is allegedly also looking for compensation and is hoping that its decision to voluntarily hand back its W-CDMA licence will strengthen its case.

Other possible candidates for spectrum trading

In August 2003 Telefonica Moviles received permission from the Italian government to sell the 3G licence belonging to Ipse, in which Telefonica owns a controlling 45.7% stake. Ipse bought its W-CDMA licence in October 2000 for EUR 4.73 billion. TIM, the mobile telephony unit of Telecom Italia, and Omnitel, which is majority-owned by Vodafone, have expressed interest in acquiring Ipse's 3G licence due to their leading roles in the Italian wireless market (TIM had 26,051,000 subscribers at the end of September 2003, a 48% market share, and Vodafone 18,765,660, which represents a 35% market share, according to the EMC World Cellular Database). The other 3G licence holder in Italy is Wind, which is unlikely to seek extra spectrum.

Telefonica Moviles is also trying to offload its Swiss W-CDMA unit, 3G Mobile. It reportedly remains in talks with the other three operators that were awarded W-CDMA licences in Switzerland - Orange, the cellular division of France Telecom, the Swiss unit of Danish group TDC and Swisscom. The Swiss regulator is not commenting on the matter at present and it remains unclear what stance it will take. Swiss regulations require operators to have constructed W-CDMA networks with at least 50% population coverage by the end of 2004.



Significance of spectrum trading

Spectrum trading gives Telefonica Moviles the chance to recoup some of the EUR 6.49 billion it invested in 3G licences in Germany, Switzerland, Italy and Austria. The Spanish operator froze all its 3G activities outside Spain in July 2002 and has since been in negotiations with the respective regulators over the possibility of spectrum trading.

Every case of W-CDMA spectrum trading in Europe has centred around a failed greenfield 3G operator. These greenfield licensees have suffered from not having an operational GSM network in their respective 3G licence countries to support their W-CDMA network roll-out plans. With the exception of Hutchison's 3G operations it seems that only Spain's Xfera will survive as a greenfield W-CDMA operator in Europe.

The consolidation of the 3G market that is resulting from spectrum trading could actually help speed up the roll-out of W-CDMA networks, however. Following mobilkom austria's purchase of 3G Mobile, Austria is left with five operational W-CDMA companies, which is still higher than the European norm of three to four. Sweden will be left with three W-CDMA operators once the sale of Orange Sweden's 3G licence is approved. The extra spectrum will enable Svenska UMTS-nat to create a more competitive 3G service in Sweden and will certainly come as a relief to Telia, which failed to win a W-CDMA licence in 2000.

PTT - Could voice become the next killer application in Europe?

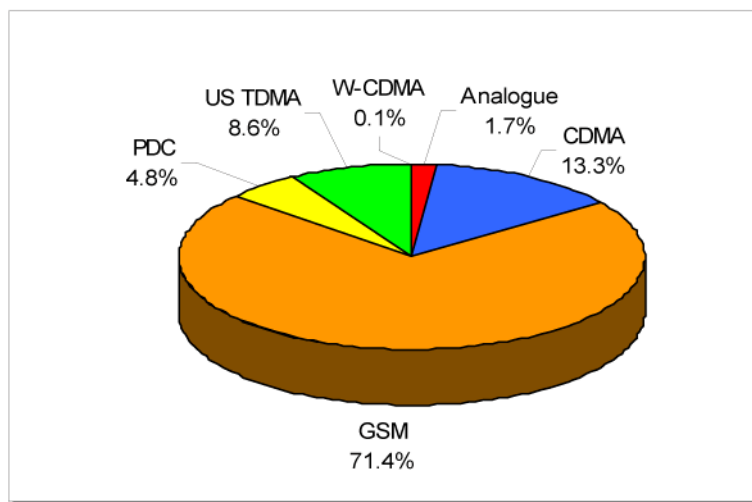
After months of rumours and speculation that major European operators were trialing push to talk, Orange has finally announced plans to commercially launch the first push to talk offering over GSM in the UK and France in Q2 2004 and across eight other markets by the end of 2004. The tide has definitely changed in favour of push to talk as regards its prospects in Europe. According to Devine Kofiloto, principal analyst at EMC and author of a recently published push to talk report, "Endorsement by a major European operator is a significant boost for the service and if we are to mirror developments in the US market, we should expect Vodafone and T-Mobile to announce their own service offerings in the coming months".

Branded 'Talk Now', the service offering currently being trialed by selected business users, with technology provide by Kodiak networks, will be available initially over the Treo 600 Signature phone, which comes with an embedded Kodiak push to talk client. Further handsets based on Symbian and Microsoft operating systems are expected to be added to the portfolio later in Q2 2004.

Though the push to talk market currently is limited and primarily confined to iDEN and CDMA networks, the initiative by Nokia, Siemens and Ericsson to jointly define specifications to create an open standard for Push to Talk over Cellular (PoC), thus extending the capability over GSM/GPRS/EDGE, has effectively opened up a potentially wider market for the service. GSM subscribers accounted for 71% of global mobile subscribers at the end of September 2003.



Chart 8: World cellular subscribers by technology



Source: EMC World Cellular Database

Predominantly a US phenomenon, will European consumers take to push to talk as their US counterparts? Orange expects to attract 1 million users to its push to talk service in the 12 months following launch, a very ambitious target for a new service offering. If memory serves us right, KPN Mobile and 3 in the UK set similar one million subscriber targets when they launched i-mode and 3G services respectively.

Should push to talk gain such wide acceptance and adoption among European consumers as being predicted by some market observers, the irony of the situation would be in voice becoming the new 'killer application'.



Regional Reports

Mobitel launches first W-CDMA network in Central and Eastern Europe

Mobitel launched its W-CDMA network in Slovenia on 12 December 2003, thereby becoming the first operator to introduce the technology to consumers in Central and Eastern Europe. Although Mobitel still describes the network as 'pre-commercial', the operator is already offering the service to all of its postpaid subscribers and has introduced a tariff specifically targeted at W-CDMA users. With its NMT-450 network still in service, Mobitel is the only global operator running 1G, 2G and 3G networks, according to EMC.

Mobitel is confident that W-CDMA will prove a success in Slovenia. The operator points to take-up of its Planet portal, which was launched in February 2003 and had more than 315,000 users in early December 2003, as proof that the market is ready for advanced data services. Additionally, the operator has in excess of 115,000 GPRS subscribers, approximately 8% of its total user base of just over 1.4 million.

Mobitel has adapted the content of Planet according to the new capabilities of its W-CDMA system, offering richer content at faster data speeds. Additionally, some new Planet services have been introduced that are available only over W-CDMA. These include Planet Radio, a radio station broadcasting specifically for mobile users. The station plays 20-minute blocks of Slovene and international popular music and will in future include music requests, congratulations songs and allow subscriber participation in surveys and games.

Mobitel's W-CDMA coverage area includes the capital Ljubljana and the airport, covering approximately 15% of Slovenia's population. The network vendor is Ericsson. During the second phase of its network roll-out, coverage will be extended to 62% of the population, focusing predominately on major urban areas. Where there is currently no W-CDMA coverage, handsets will use the operator's GSM coverage. Mobitel is offering only one supporting handset, the Motorola A835, although it confirmed to EMC that other models would be introduced during H1 2004. Subscribers will be able to use their existing SIM cards in Mobitel's W-CDMA phones and will not be required to change their numbers. The Motorola handset is not currently being subsidised (although the operator commented that it will be in due course) and is steeply priced at SIT 199,000 (USD 1,080 or EUR 890).

Mobitel has signed W-CDMA roaming agreements with Hutchison in the UK, Italy, Austria, Hong Kong and Sweden as well as J-Phone (Japan). Agreements with Hutchison in Denmark and Australia are also in the process of being finalised. Prepaid subscribers are not currently able to use the W-CDMA service. The operator says that it plans to introduce prepaid GPRS on 20 January 2004, however, and, having deployed the CAMEL 3 standard, will be able to offer W-CDMA services to prepaid users in the future.

Mobitel UMTS is the operator's new subscription targeted at W-CDMA users. The monthly fee is SIT 15,000 (USD 82), which includes 200 minutes of talk time, 200 minutes of video telephony, 200MB of packet-based data transfer and 200 MMS (for use solely within Mobitel's network). Subscribers can still use W-CDMA without changing their current subscription package and are charged the same data rates as they are already paying for GPRS. In the period of pre-commercial services,



video telephony is being offered free of charge. The operator will begin charging when it starts 'full commercial' services later in H1 2004, the exact date being largely dependent on handset availability.

Mobitel is declining to provide W-CDMA subscriber targets. Local press reports have suggested that it is aiming for 10,000 within four months but the operator is reluctant to make forecasts. Given the disappointing interest in 3G exhibited so far in Western Europe, along with Mobitel's currently limited coverage, high handset price and limited availability, it is hard to envisage significant numbers of users before at least 2005.

Mobitel has opened a 'class room of digital communication' in Ljubljana, called Mobilatory (Mobitel laboratory). Until 29 February 2004 the operator is presenting all its W-CDMA innovations as well as special lectures related to the mobile industry. Going forward, Mobitel plans to introduce a greater variety of 3G services including video conferencing, audio and video storage, location-based services and the opportunity to purchase cinema tickets, choose seats and view movie trailers.

Mobitel leads the way in Central and Eastern Europe

Mobitel was awarded Slovenia's only UMTS licence in November 2001. Its closest competitor, Si.mobil, declined to take part in the tender complaining that the licence fee was too high, although it remains interested in bidding if a second tender is launched. Mobitel's launch of W-CDMA in Slovenia contrasts with other markets in Central and Eastern Europe where there have been continued delays in both the awarding of licences and the roll-out of services. The delays are attributable largely to the unfavourable investment climate in the telecoms sector worldwide in recent years and reflect the slow progress in the roll-out and up-take of W-CDMA services in Western Europe.

Latvian licensees LMT and Tele2 are expected to be the next regional operators to launch 3G services. Their licences stipulate that they should commence commercial activities before 31 December 2004. However, licensees in Poland and the Czech Republic both recently had their mandatory start dates delayed by one year to 2006. Hungary, which at one stage planned to sell licences in 2001, is still to confirm its W-CDMA licence tender details, while both Croatia and Romania have also repeatedly delayed launching tenders.

The regional delays in W-CDMA are most likely one of the main reasons behind recent moves towards deploying EDGE technology by some Central and Eastern European operators. In fact, Si.mobil recently confirmed that it intends to install an EDGE network in Ljubljana in Q1 2004. Although the timing of Si.mobil's announcement (8 December 2003) may well have been aimed at taking some of the attention away from Mobitel's 3G launch just days later, it is a sensible move in a market where mobile penetration has already exceeded 90%. Other operators within the region that have confirmed that they are actively trialling or deploying EDGE include Pannon and Westel in Hungary, Orange in Romania, Bite in Lithuania and Mobtel (Serbia).



Country Reports

Armenia

Date	Subscribers
Q3 2002	53,090
Q4 2002	70,590
Q1 2003	82,690
Q2 2003	74,900
Q3 2003	75,890
Q4 2003	81,600

ArmenTel looks set to lose GSM licence

Armenia's monopoly ArmenTel looks set to lose its GSM licence, possibly before the end of 2003. A tender to attract a new licensee is expected to be launched, but no date has yet been set. ArmenTel's network has been accused of being unable to satisfy current and forecast demand from its subscriber base, which totalled 75,888 at the end of September 2003, and the operator has admitted that it has given investment priority to its fixed line network. ArmenTel is 90% owned by OTE, which stated in its Q3 2003 results that it will not fund further capital requirements in ArmenTel and that it is negotiating towards an exit from the market. ArmenTel was awarded a 15-year licence in 1997.

Austria

Date	Subscribers
Q3 2002	6,535,600
Q4 2002	6,719,400
Q1 2003	6,817,200
Q2 2003	6,923,350
Q3 2003	7,056,600
Q4 2003	7,214,060

ONE outsources network management to Alcatel

On 12 November 2003 the Austrian network operator, ONE (Connect Austria), awarded Alcatel a EUR 472 million contract for the management, operation and maintenance of its network. The contract, which makes Alcatel a strategic partner of ONE, will take effect from 1 January 2004 and will last for seven years. By outsourcing its network activities, ONE intends to shift its focus from managing infrastructure to the development of new customer-orientated services.

According to the contract, Alcatel will manage and operate ONE's multi-vendor mobile network and will manage the project planning and the physical roll-out of ONE's GSM network extensions and new W-CDMA infrastructure, independently of the origin of the equipment. This contract also includes facility management for ONE's headquarters, regional offices and ONE shops. The outsourcing agreement involves the transfer of approximately 200 operation and maintenance employees from ONE to Alcatel in Austria.

In June 2003 Alcatel signed a similar network management deal with Telecom New Zealand.

T-Mobile, ONE and tele.ring all launch W-CDMA networks to comply with licence conditions

All of the W-CDMA licence holders in Austria have now launched their 3G networks with the exception of 3G Mobile, which has been acquired by mobilkom. In December 2003 T-Mobile, Connect Austria and tele.ring all launched W-CDMA networks but none of them opted for a commercial launch aimed at the mass market. The operators launched their W-CDMA networks in order to comply with the licence regulations, which stipulated that licence holders must have launched a commercial W-CDMA offer with at least 25% population coverage by the end of 2003. To this end each of the operators has made only one W-CDMA handset available to its customers in selected shops and has not introduced any new



services designed to take advantage of the enhanced speeds offered by W-CDMA. The launches will simply allow customers to use the W-CDMA networks as a means of speeding up existing GPRS services.

Mobilkom and Hutchison 3 launched their W-CDMA networks in April and May 2003 respectively. In contrast they have both been offering 3G-tailored services since launching their W-CDMA networks. However, by the end of 2003 they had acquired fewer than 15,000 W-CDMA subscribers between them. This slow up-take has been attributed to the shortage of W-CDMA handsets and the less than smooth functioning of the available handsets. T-Mobile, Connect Austria and tele.ring all pointed to these problems as reasons for deciding not to actively push W-CDMA-oriented services in the mass market for the time being. They do not seem likely to do so until the end of 2004 at the earliest.

Table 4: W-CDMA handsets and population coverage

W-CDMA	Launch date	Population coverage	Available handset	Handset price (EUR)
T-Mobile	10 Dec 2003	37%	Nokia 6650	499
Connect Austria (ONE)	30 Dec 2003	25%+(a)	Nokia 7600	999
tele.ring	31 Dec 2003	27%	Siemens U15	899
Hutchison 3G	5 May 2003	35%	NEC e606	576
Mobilkom	25 Sep 2002(b)	50%	Siemens U10	799

Source: Operators
 (a) One has stated it as 'clearly more than 25%'
 (b) Handset first made available on 25 April 2003.
 Population coverage is at end December 2003

Tariff plans of the new W-CDMA entrants

Both T-Mobile and Connect Austria are using existing GPRS tariff plans to charge for data and voice usage over the W-CDMA networks. All postpaid subscribers can use the W-CDMA network.

Table 5: T-Mobile data tariff plans

Tariff plan	Monthly subscription (EUR)	Data included with subscription (MB)	Additional data cost (per MB, EUR)
T-Mobile Data	7	10	1
T-Mobile Data Fun	n/a	n/a	5

Source: T-Mobile Austria
 Data volumes include WAP and internet access. No activation charge.

Table 6: Connect Austria data tariff plans

Best One Data tariff	Monthly subscription (EUR)	Tariff for WAP (per 10KB, EUR)	Tariff for internet (per MB, EUR)
Up to 10MB usage	n/a	0.20	2.00
Up to 20MB usage	n/a	0.20	1.50
Over 20MB usage	n/a	0.20	1.00

Source: Connect Austria (ONE)
 No activation charge.

In the case of tele.ring, a new tariff plan has been created for the W-CDMA network. At the time of launch the service was available only to users subscribing to the Mobil 180 tariff plan, although the operator intends to make it available to all postpaid subscribers by Q2 2004.



Table 7: W-CDMA tariff

Tariff plan	Activation fee (EUR)	Monthly subscription	Data included with subscription (MB)	Additional data cost (per MB)
tele.ring UMTS	99	35	50	0.80

Source: tele.ring

Bulgaria

Date	Subscribers
Q3 2002	2,264,250
Q4 2002	2,507,940
Q1 2003	2,680,570
Q2 2003	2,795,180
Q3 2003	3,016,650
Q4 2003	3,204,200

Mobikom to develop CDMA-450 network

Mobikom has announced plans to digitalise its NMT-450 network by migrating to CDMA-450. The network infrastructure vendor will be Huawei. Mobikom's analogue network has been losing subscribers since peaking at around 180,000 in Q2 2001. The operator had around 115,000 subscribers at the end of October 2003, according to EMC data. Huawei Technologies has been selected to provide the CDMA infrastructure. The launch of the new network is expected in Q3 2004 and the operator is reportedly targeting a 10% market share by the end of that year, up from its end of September 2003 share of just 3.9%, according to EMC data.

The government is offering a third GSM licence to the winning bidder in the BTC privatisation tender. Because BTC (the fixed line operator) owns a 39% stake in Mobikom, the future of the analogue operator appeared to be dependent on the outcome of the privatisation tender. However, the sale has been continually delayed due to various legal reasons, forcing Mobikom to take action in order to arrest its falling revenues and dwindling subscriber base.

CDMA-450 services have already been launched in Eastern Europe by Telemobil (Zapp Mobile) in neighbouring Romania and by MCC, Delta Telecom and Cellular Communications of Bashkortostan in Russia. Recently three CDMA-450 licences were also issued in Latvia.

GloBul launches MMS

GloBul launched commercial MMS on 11 December 2003. The MMSC was supplied by Nokia. The service is available to all GloBul subscribers, both contract and prepaid. In an initial period lasting until 15 January 2004, sending MMS will be free. Bulgaria's other GSM operator, market leader MobilTel, launched MMS in late October 2003, using a LogicaCMG MMSC. MobilTel is offering the service for free until 4 January 2004.

Cyprus

Date	Subscribers
Q3 2002	463,500
Q4 2002	491,810
Q1 2003	519,620
Q2 2003	555,700
Q3 2003	594,400
Q4 2003	630,100

Alcatel to supply network infrastructure to Scancom

Alcatel has announced that it has signed a contract to supply network infrastructure to Scancom. Alcatel will supply GSM/GPRS/EDGE infrastructure (radio and core) and expects the network to be operational by 1 May 2004. Additionally, Alcatel says that it will also be supplying the IN platform for services such as MMS, voicemail, SMSC, mobile number portability (MNP) postpaid/prepaid convergence.



Scancom beat Cosmote to acquire Cyprus' second GSM licence in an auction in October 2003 and will compete with government-owned CYTA.

Czech Republic

Date	Subscribers
Q3 2002	8,102,160
Q4 2002	8,584,160
Q1 2003	8,771,570
Q2 2003	8,937,500
Q3 2003	9,148,140
Q4 2003	9,557,500

UMTS start date postponed until 2006

Eurotel and T-Mobile, the two Czech UMTS licensees, have reached an agreement with the Czech Telecommunications Office (CTU) to postpone by one year the launch of UMTS services to 1 January 2006. In exchange for being granted the delay, the operators will pay their licence fees in two instalments during 2004 instead of the previously agreed nine instalments up to 2011, according to reports.

The CTU's decision had been widely expected for some time. In September 2003 T-Mobile told EMC that a delay would enable it to further monitor the progress of the technology elsewhere in Europe as well as allowing more time for the development of a greater range of supporting handsets at lower prices. The accelerated payments will also bring in badly needed cash for the state budget of 2004.

The delay in the Czech Republic mirrors delays in Poland where, in September 2003, the regulator delayed for a second time by one year the mandatory start date for the introduction of UMTS services, also to 1 January 2006.

Siemens to supply W-CDMA infrastructure to T-Mobile

Siemens has announced that it has won a W-CDMA network infrastructure contract with T-Mobile in the Czech Republic. Siemens will deliver and install radio and switching technology. In the first phase of development of the network-coverage will be restricted to the greater Prague area.

T-Mobile is only the second operator in Central and Eastern Europe to sign a W-CDMA infrastructure contract. The first was Mobitel (Slovenia), which launched pre-commercial services in December 2003.

KPN and Swisscom sell Cesky Telecom stakes

KPN and Swisscom have sold their combined 27% stake in Cesky Telecom which was held through the TelSource consortium. The price was set at CZK 255 (USD 9.5) per share and has been purchased by international investors. TelSource, in which KPN held a 51% stake and Swisscom 49%, was selected in 1995 by the Czech government as a strategic partner for Cesky Telecom. Cesky Telecom is currently in the process of increasing its stake in GSM-9/18 and NMT-450 operator Eurotel to 100% through the purchase the 49% of shares owned by Atlantic West, a consortium of Verizon and AT&T Wireless. The deal is still expected to be completed before the end of 2003.

In June 2003, KPN sold its direct 6.48% stake in Cesky Telecom, also to international investors. The government is looking to privatise the remaining 51.1% of shares in Cesky Telecom, although this is not expected before 2005.



Denmark

Date	Subscribers
Q3 2002	4,116,000
Q4 2002	4,208,000
Q1 2003	4,385,000
Q2 2003	4,694,000
Q3 2003	4,809,000
Q4 2003	4,988,900

Telenor finally acquires Sonofon as market begins to show signs of consolidation

A deal had long been on the cards; the only thing the two parties could not agree on until now was the price. On 10 December 2003 Telenor Mobile finally came to an agreement with its partner BellSouth, however, to acquire the remaining 46.5% stake in Danish operator Sonofon, for DKK 3.05 billion. The deal is expected to be finalised in the early part of 2004 following the granting of all necessary regulatory approval.

Price competition in the Danish mobile market is intense and observers are strongly of the opinion that Telenor Mobile (or Sonofon itself) will have to make further acquisitions if it is to defend its market share. A consolidation of the market has long been expected. Service providers, better known in the Danish mobile market as discount operators, have initiated an intense price war that has led mobile call charges to drop by as much as 25% a month. In Denmark regulations allow operators to bind newly acquired customers to their networks for a six-month period only. This has helped spur customer churn, largely to the benefit of the low-priced discount operators.

To defend its market share of 49.18% TDC has moved to acquire the remaining shares in service provider Telmore, in which it had already acquired a 20% stake in April 2003. Telmore had a total subscriber base of 324,156 as of H1 2003. Meanwhile service provider CBB Mobil could be Sonofon's target, judging by comments from Sonofon's administrative director, Tage Reinert, that he could be interested in CBB if the price were right. CBB Mobile is currently reported to have approximately 200,000 subscribers and offers its services over Sonofon's network.

One thing is for certain though: should CBB Mobile come up for sale, Sonofon will not be the only interested party. Struggling TeliaSonera Denmark, which is currently lagging behind its rivals and is positioned as number four in the market, is also bound to take action. Its parent company, TeliaSonera, has made no secret of its intention to turn its Danish operations around and become a major player in the Danish market. With a mobile penetration rate of 89.3% in Denmark at the end of September 2003, growth by acquisition seems the only viable option for the fourth-placed operator. Though reported to have merely acquired approximately 3,000 subscribers after five weeks in operation, Hutchison's 3G launch in October 2003 has intensified competition.

Service provider Debitel, which currently offers services over both Sonofon's and TDC's networks, is also up for sale. In this case it is not only the Danish operation in isolation that is up for sale, however, but the whole company with mobile and fixed line operations in Germany, the Netherlands, Slovenia and France. Debitel had a subscriber base of 301,782 in Denmark as of H1 2003.



Estonia

Date	Subscribers
Q3 2002	808,000
Q4 2002	863,600
Q1 2003	901,100
Q2 2003	928,550
Q3 2003	955,960
Q4 2003	992,400

Tele2 launches GPRS and MMS

Tele2 launched GPRS and MMS on 17 November 2003, thus becoming the third (and last) operator in Estonia to do so. Both services are free of charge until the end of 2003. The infrastructure for the GPRS service, which is available only to postpaid users, was supplied by Siemens while the MMSC was supplied by Symsoft. Tele2 subscribers can currently send MMS only within their own network but interoperability is expected to be established before the end of 2003.

France

Date	Subscribers
Q3 2002	35,957,600
Q4 2002	36,849,600
Q1 2003	37,092,100
Q2 2003	37,557,300
Q3 2003	38,332,900
Q4 2003	38,878,200

500,000 i-mode subscribers at Bouygues Telecom

Bouygues Telecom, the smallest of France's three mobile operators, has announced that it has more than 500,000 active i-mode subscribers, which represents approximately 8% of its total subscriber base, according to EMC data.

Bouygues launched i-mode in November 2002. After a slow start the company reported in early October 2003 that it had just over 300,000 subscribers and, one year after the i-mode launch, in November 2003, the company announced that i-mode users represented approximately 12% of its 3.4 million contract subscribers (408,000). Elsewhere in Europe i-mode is offered by KPN Mobile in The Netherlands and its subsidiaries E-Plus in Germany and Base in Belgium, which together had approximately 490,000 users at the end of Q3 2003, as well as by Telefonica Moviles and Wind in Spain and Italy respectively.

Bouygues Telecom has not published a target for the number of subscribers that it hopes to sign up to i-mode but has commented that it will need to attract at least a million subscribers to the service if it is to make it profitable in the long term. Competition in the mobile data market in France has increased since Bouygues' competitor SFR launched Vodafone Live! in October 2003. In Germany, where E-Plus is, like Bouygues, the third operator in the market with less than half as many subscribers as either of the leading two operators, the launch of Vodafone Live! caused i-mode growth to stagnate in Q1 2003. To counter the threat from the competition Bouygues is offering two months' worth of unlimited i-mode access to those who sign up to the service for the first time before 18 January 2004 for a minimum of 12 months and those who purchase an i-mode handset.

Greece

Date	Subscribers
Q3 2002	7,673,220
Q4 2002	8,064,230
Q1 2003	8,370,740
Q2 2003	9,062,700
Q3 2003	9,464,900
Q4 2003	9,897,200

Vodafone to increase stake in Panafon

Vodafone has entered into an agreement with Intracom to purchase its 9.433% stake in Panafon. Intracom is a Greek telecommunications equipment manufacturer. The deal is worth EUR 6.18 per share, which will amount to a total of EUR 316.725 million for Intracom's total 51.25 million shares. As a result of the transaction, Vodafone's stake in Panafon will increase from 65.362% to 74.795%. The announcement is consistent with Vodafone's strategy of increasing its stakes



in existing operations 'where opportunities arise for the creation of enhanced shareholder value'. In December 2002 Vodafone acquired France Telecom's 10.85% stake in Panafon.

STET set to launch commercial W-CDMA network

STET Hellas has confirmed that it will launch commercial W-CDMA services on 27 January 2004, thus becoming the first Greek operator to introduce the technology. The service will be offered initially just to STET's contract subscribers. Advanced MMS and video calling, allowing a subscriber to see the person he or she is speaking to, are among the new services that the operator is introducing for its W-CDMA network. WAP and internet browsing will also be available at considerably increased speeds. STET commented that the launch was consistent with its overall strategy for innovation and 'trend setting' within the Greek market. STET, along with Cosmote and Panafon, was awarded a UMTS licence in July 2001. Cosmote and Panafon are expected to have launched commercial services by June 2004, in advance of the Athens Olympic Games in August 2004.

STET is offering four handsets that support W-CDMA, the Nokia 6650, Nokia 7600, Motorola A835 and Siemens U15. Handset prices vary from EUR 410 for the Nokia 7600 to EUR 850 for the Motorola A835. The Nokia 6650 and Siemens U15 are priced at EUR 600 and EUR 690 respectively. STET is not offering any subsidies on its W-CDMA handsets and is unable to say when or whether subsidies will be introduced at a later date. Coverage will be restricted initially to the greater Athens and Thessaloniki areas and later expanded to Patra and Irakleion (Crete). The infrastructure vendor is Nokia. STET confirmed that it is yet to establish any W-CDMA roaming agreements.

STET has introduced a new tariff plan, TELESTET 3G 70. It offers 70 minutes' of bundled voice airtime, 40MB of WAP and web browsing and 15 MMS. The monthly fee will be EUR 38, although that will be reduced to EUR 23 per month in a promotional period lasting until 1 August 2004. During this time the video call service will be charged at EUR 0.005 per second before increasing to EUR 0.01 per second. STET confirmed to EMC that it was expecting only around 5-7,000 W-CDMA subscribers by the end of the Olympic Games in August 2004. This figure is equivalent to approximately only 0.25% of its active subscriber base at the end of December 2003, according to EMC data.

Although STET commented in July 2003 that it was looking at the possibility of deploying EDGE, mainly to complement its W-CDMA service offering, the operator says that introducing the technology does not form a part of its 2004 business plans. STET says that it will re-evaluate market conditions at a later date, particularly with regard to the penetration of EDGE-enabled handsets in the Greek market, before making a decision as to whether or not to proceed.

Nokia to provide TETRA terminals to public safety personnel

Nokia has announced that it will provide its THR880 and TMR880 TETRA terminals to public safety personnel in Greece. The radios will be made available to more than 20,000 users, including police, fire brigades, military and other security personnel. All terminals will be in operation before the start of the Olympic Games in 2004.



Ireland

Date	Subscribers
Q3 2002	3,003,610
Q4 2002	3,089,590
Q1 2003	3,121,850
Q2 2003	3,172,000
Q3 2003	3,206,770
Q4 2003	3,260,400

O2 launches 3G trials with commercial launch slated for H2 2004

O2 Ireland has launched limited 3G services to a selected group of 25 business and individual customers. These have been equipped with Nokia 6650 handsets and they are using O2's 3G network for their voice and data communications. The aim is to launch commercially in H2 2004, contingent on handset availability. O2's network coverage currently extends to around 35% of the population covering major urban centres such as Dublin city and county as well as the cities of Cork, Limerick, Galway, Waterford and Kilkenny.

Eircom virtually abandons acquisition plans

Eircom's strategy for re-entering the mobile services market in Ireland appears to have shifted from acquisition to MVNO, with sources confirming the company has contacted at least one of the existing operators to ascertain their willingness to allow the former incumbent to piggyback on their network.

Initially Eircom was expected to make a bid for Meteor, which has about five per cent of the domestic market and has addressed the coverage shortfalls that had undermined its offering. However, the decision to sound out O2 Ireland, Vodafone Ireland and Meteor about an MVNO arrangement suggests a change of direction. O2 Ireland spokesperson Aoifah Jones would not confirm whether or not Eircom had been in touch regarding the possibility of using O2's Irish network. However, O2 Ireland has revealed that it is in discussions with 3G licence holder Hutchinson Whampoa regarding a national roaming agreement for 2G services. O2 Ireland is obliged under the terms of its 3G licence to enter into commercial negotiations to provide 2G national roaming with other operators with a 3G 'A' licence. These discussions commenced in early December and are expected to be completed in January.

Joan Keating from Vodafone Ireland's press office was able to confirm that the company had received a communication from Eircom regarding a possible MVNO arrangement and added that she would have expected a similar document to have gone to the other mobile operators. Keating said Vodafone Ireland was considering the document and its likely response internally, although with the imminent holiday period no decision would be made before the end of the year. Indeed, she said a decision on whether or not to commence discussions with Eircom might not be made before February 2004. None of the operators are obliged to enter into an MVNO agreement with Eircom or any other interested party and commercial considerations would appear to be the only factor in the decision. Eircom is likely to target corporate customers with any mobile offering.

Distribution shake-up predicted

The corporate mobile supplier network in Ireland is bracing itself for another period of consolidation following the re-emergence of two former heavy hitters.

Conor Headon and Ronan Murphy built up a chain of mobile phone shops during the 1990s before selling their business, Cellular World, to O2 in 1998. Having agreed to continue managing the new operation under an earn-out agreement



that expired in 2001, they were prevented from re-entering the market under the terms of a competition clause in the deal with O2. That clause expired earlier this summer and now Headon and Murphy have targeted corporate mobile phone customers with their new company, Commercial Wireless. As well as selling phones and providing after sales support, corporate customers (and small to medium sized businesses in particular) will be advised on the best packages for their workforce. Commercial Wireless is expected to act as an agent for all the mobile operators in Ireland, including O2.

The dealer landscape has changed significantly over the last two years, but both men are confident they still know what corporate customers want and are convinced they can offer a better service to smaller enterprises. Despite the demise of a number of outlets and the ongoing delays in the implementation of next generation network services, several high profile, expensively designed retail outlets have opened in key locations across Ireland over the last year.

The group has hired Derek McDonald (formerly general manager of Cellular World) as chief executive of the new group. Maurice Healy, chief executive of Calyx and former managing director of Alphyra, will be chairman.

Interestingly, the founders of Commercial Wireless have forecast a period of consolidation among the dealer network over the next year. They say they plan to expand their business through a combination of organic growth and acquisition.

Italy

Date	Subscribers
Q3 2002	51,732,570
Q4 2002	52,000,700
Q1 2003	53,071,300
Q2 2003	53,361,360
Q3 2003	54,556,660
Q4 2003	55,812,300

Vodafone launches W-CDMA trials

On 9 December 2003 Vodafone reported its pre-commercial W-CDMA launch in Italy, which comes prior to the operator's full commercial W-CDMA launch that is scheduled for 'May or June' 2004. The pre-launch services include the provision of mobile data cards for use in laptops as well as handsets for existing Vodafone business customers.

The pre-launch has been timed to coincide with the start of the Business Trial involving so-called 'friendly customers'. These are businesses which, from 9 December 2003, will be able to use the Vodafone 3G Mobile Connect Card on a technical trial basis. Among these are four large Vodafone customers, Unicredito Italiano, RAS, Nestle and the Municipality of Turin, which will run the largest Data Cards pools. In early 2004, once the trial has come to an end, the Vodafone 3G Mobile Connect Card will be on sale at Vodafone One outlets. Vodafone is already providing coverage of 13 cities for the business trial while 125 cities and 30% of the country's population will be covered by April 2004.

The 3G Mobile Connect Card is the first product integrating W-CDMA and GPRS functionality, transmitting at a speed of up to 384Kbps when in W-CDMA coverage areas, while outside W-CDMA coverage areas the 3G Data Card reverts to GPRS. Vodafone's 3G Mobile Connect Card is supplied pre-configured for internet access and the user's corporate intranet as well as SMS, email and Instant Messenger.



The Italian trial of Vodafone Live! services over W-CDMA also offers video messaging.

In November 2003 Vodafone's competitor TIM announced similar plans for a pre-commercial W-CDMA trial, to be followed by a full commercial launch in H2 2004.

Latvia

Date	Subscribers
Q3 2002	868,740
Q4 2002	952,120
Q1 2003	1,025,600
Q2 2003	1,114,460
Q3 2003	1,212,970
Q4 2003	1,297,000

LMT and Nokia demonstrate public 3G call

LMT has made a public 3G call using a Nokia test network. It is the first such call to be made in Latvia, according to Nokia. The demonstration included various services such as video streaming and internet browsing at speeds of up to 380Kbps. The call was made at LMT's offices using the Nokia 7600 handset. Nokia is LMT's sole GSM infrastructure vendor. LMT was awarded a UMTS licence along with Tele2 in December 2002 and is required to commence commercial activities before the end of 2004.

Regulator issues CDMA-450 licences

Latvia has awarded CDMA-450 licences to three companies in a move designed to help stimulate competition in the Latvian mobile market. The three recipients are Radiokoms, CSC Telecom and Telekom Baltija. The licences were awarded on 1 October 2003, are valid for five years and cost LVL 100 (USD 180) each. The operators are planning to launch services by the spring of 2004, the regulator confirmed to EMC. Initial coverage will be focused around Riga with up to 90% of Latvia's population expected to be covered by the end of 2004.

The award follows the decision by LMT to close its NMT-450 network at the end of 2002, thus making the 450MHz frequency range available. Unlike its Baltic neighbours Estonia and Lithuania, Latvia has only two mobile operators, LMT and Tele2. Latvia failed to attract a third player to the market in late 2002 as no bids were received for a combined GSM and UMTS licence. A second attempt to sell the licence will not be made before September 2004.

LMT's analogue subscriber base fell from a peak of just over 14,000 in June 1998 to around 3,000 in late 2002, according to EMC. Its GSM network, on the other hand, had 588,009 subscribers on 15 November 2003.

Malta

Date	Subscribers
Q3 2002	242,820
Q4 2002	255,500
Q1 2003	267,250
Q2 2003	275,780
Q3 2003	282,260
Q4 2003	289,000

Vodafone Malta launches Vodafone Live!

On 5 December 2003 Vodafone Malta launched Vodafone Live!, enabling customers to access a range of services including games, ringtones, picture messaging, email and other information and entertainment services, all accessed through the colour live! icon-based, colour menu on handsets with integrated cameras.



In October 2002 Vodafone initially launched Vodafone Live! in eight countries and by December 2003 it had doubled the total, bringing the number of Vodafone Live! markets to 16 including Malta.

Vodafone Live! is available on Vodafone Live! branded handsets, which are available at special discounted prices from Vodafone retail outlets and Vodafone Live! authorised dealers in Malta. Vodafone customers can acquire Vodafone Live! handsets from MTL 115. As a special offer during December 2003, with every purchase, an 'etalk' customer received MTL 10 worth of free talk time as well as a MTL 6 voucher from Exotique. When purchasing a Vodafone Live! terminal contract customers benefited from MTL 15 of free talk time and a weekend break for two at the Riviera Barcelo Resort on half board basis. These offers applied to the following handset models: Sony Ericsson T610, Sharp GX20 and Sagem MY V-65 and were available until 31 December 2003.

In a related special offer to mark the launch, picture messaging was free during December 2003 and Vodafone did not levy the network charges. Other content was also free during December 2003.

Poland

Date	Subscribers
Q3 2002	12,639,370
Q4 2002	13,898,290
Q1 2003	14,818,370
Q2 2003	15,472,610
Q3 2003	16,251,620
Q4 2003	17,164,720

PTC selects Siemens to supply W-CDMA network

PTC has confirmed that it has selected Siemens to supply its W-CDMA network in the Warsaw area. The operator said that its decision was made following several months of technical, organisational and economic analysis and similar procedures will be used to choose vendors for network developments elsewhere within the country. PTC, along with other licensees Polkomtel and Centertel, are required to introduce W-CDMA services by 1 January 2006 after the regulator delayed the mandatory start date by one year in September 2003.

The award is Siemens' second in Central and Eastern Europe following its agreement with T-Mobile (Czech Republic) on 19 January. The only other W-CDMA infrastructure agreement that has been signed so far in the region was the contract awarded by Slovenian operator Mobitel to Ericsson.

Portugal

Date	Subscribers
Q3 2002	8,650,310
Q4 2002	8,984,000
Q1 2003	9,071,920
Q2 2003	9,162,680
Q3 2003	9,521,400
Q4 2003	9,745,700

Motorola wins Optimus W-CDMA contract

On 20 January 2004 Motorola announced that it had signed an agreement with Optimus to build its W-CDMA network in northern Portugal. The value of the contract has not been revealed. Motorola was awarded the three-year deal by Optimus following a four-month network trial. Optimus plans to deliver 3G services to northern Portugal by Q2 2004.

Optimus won its 3G licence in December 2000, along with TMN and Vodafone, while a fourth licence awarded to OniWay has been annulled and the spectrum



split between the other three licence holders. The licences comprise 2 x 15MHz of shared spectrum and 5MHz of non-shared spectrum and stipulate that 3G networks should cover 20% of the population by the end of the first year of operation, 40% by the end of the third and 60% by the end of the fifth year.

The operators were initially given until the end of 2001 to roll out the necessary infrastructure and launch 3G services but in June 2001 they appealed to the regulator ANACOM to push back the deadline in view of equipment shortages and technical problems. In July 2001 ANACOM agreed to a consultation and the UMTS licence holders, along with the equipment manufacturers, were required to provide details of their progress towards the launch of 3G so that a new timetable for commercial launch could be drawn up. In October 2001 the regulator announced that the 3G launch deadline would be extended for a year to 31 December 2002, although even this proved to be optimistic. Vodafone called for a further delay in August 2002, followed by a similar request from Optimus the following month. On 30 December 2003 Vodafone finally announced the pre-commercial launch of its W-CDMA network in Portugal, although access is available only to a limited number of users in Lisbon and Oporto, mainly Vodafone staff and selected business partners and customers.

At the end of September 2003 TMN was the country's largest wireless operator with 4,691,220 subscribers and a market share of 49.27%. Vodafone had 2,855,460 customers and a share of 29.99% and Optimus claimed 1,974,720 users and a 20.74% share of the market (source: EMC World Cellular Database).

Vodafone processes 53 million messages for Christmas

Vodafone's SMS service processed around 53 million text messages on 24 and 25 December 2003, an increase of approximately 26% in relation to the SMS traffic recorded on the same days in 2002. The peak for text messages was between 18:00 and 21:00 on 24 December 2003.

Vodafone, due to the increased number of calls and text messages over the Christmas period, reinforced both its call processing capacity, especially in the major urban centres, and the capacity of its SMS and MMS transmission platforms.

Vodafone reduces interconnection charge for the third time in a year

Vodafone has reduced its termination charge for interconnection between the fixed telephone network and the Vodafone mobile network by a further 7%, with effect from 1 January 2004. This reduction in the interconnection charge will lead a reduction in prices for consumer calls between the fixed telephone network and the Vodafone network if, as is hoped, fixed network operators pass on this saving to customers. Following this reduction, calls to the Vodafone network will be cheaper than to its mobile competitors, which have not made similar reductions, according to Vodafone.

Vodafone has already made two previous reductions during 2003 in its fixed-to-mobile interconnection termination charge, on 1 July 2003 and 1 October 2003, both also of 7%. The total reduction in the charge during 2003 as a whole therefore amounts to close to 20%. It is Vodafone's intention to make a further reduction in



the charge of the same order of magnitude in Q1 2004, depending on assessments at the time of market and regulatory conditions.

Romania

Date	Subscribers
Q3 2002	4,631,700
Q4 2002	5,012,560
Q1 2003	5,242,000
Q2 2003	5,551,920
Q3 2003	6,108,410
Q4 2003	7,038,100

Orange trials EDGE with Motorola

Orange has confirmed that it is conducting an EDGE trial in Romania with Motorola. The trial is using Motorola's Horizon base stations. Motorola has been a GSM infrastructure supplier to Orange in Romania since 1997. Motorola has commented that its EDGE solution is designed to support operators seeking to migrate from 2G to 3G services. The Romanian government is still to issue 3G licences, despite originally having considered launching a tender in 2001. Their sale is now expected at some time in 2004.

Several other operators in Central and Eastern Europe have already stated their interest in deploying EDGE technology. These include Bite in Lithuania, Pannon and Westel in Hungary, and Mobtel, which is currently conducting trials in Serbia.

Slovenia

Date	Subscribers
Q3 2002	1,675,200
Q4 2002	1,747,100
Q1 2003	1,774,980
Q2 2003	1,799,400
Q3 2003	1,828,750
Q4 2003	1,873,360

Si.mobil to deploy EDGE

Siemens has announced that it is supplying EDGE infrastructure to Si.mobil. The network will be installed in Ljubljana, Maribor and surrounding areas by January 2004 with commercial operations expected to start by the end of March 2004. The contract, which covers the delivery of base stations, switching technology and hardware and software components, was originally signed in July 2003. Siemens has been supplying GSM infrastructure to Si.mobil since 1997.

The decision by Si.mobil to deploy EDGE is perhaps not surprising. The operator declined to take part in the tender for UMTS licences in Slovenia in 2001, complaining that the price was too high. Si.mobil's main competitor, Mobitel, which was awarded Slovenia's only UMTS licence, is meanwhile planning to introduce commercial UMTS services before the end of 2003. Furthermore Slovenia's mobile penetration rate, which stood at almost 95% at the end of September 2003 according to EMC data, is one of the highest in Europe, clearly showing that further growth in the market will have to be driven by the launch of new services rather than subscriber net additions.



Spain

Date	Subscribers
Q3 2002	31,887,240
Q4 2002	33,076,110
Q1 2003	34,290,800
Q2 2003	34,635,260
Q3 2003	35,609,760
Q4 2003	36,566,300

Ericsson and Siemens win Telefonica Moviles 3G infrastructure contracts

Telefonica Moviles, the largest wireless operator in Spain, has chosen Ericsson and Siemens to supply radio access infrastructure for the second stage in the roll-out of its W-CDMA network in Spain. In the first stage Telefonica Moviles awarded contracts to Ericsson and Nortel but has now chosen Siemens to supply part of its network.

According to Telefonica Moviles, it selected Ericsson and Siemens because of their wide experience of W-CDMA network deployment worldwide. Ericsson has supplied W-CDMA infrastructure in more than 20 countries and was the main BTS provider for Telefonica Moviles in the past. Siemens has supplied W-CDMA infrastructure in more than 15 countries and is the main BTS provider for Amena, the third largest Spanish mobile operator (source: EMC World Cellular Database, January 2004).

The second stage in the roll-out of Telefonica Moviles' W-CDMA network will provide coverage for the range of 3G products and services that the company plans to offer in 2004 to all its clients, subject to handset availability. The company aims to have between 7,000 and 8,000 W-CDMA base stations by 2005, requiring an investment of some EUR 1 billion in W-CDMA infrastructure in 2003-2006. As of January 2004, as a result of the first stage of deployment, the company has W-CDMA coverage in 52 provincial capitals in Spain, with 1,100 base stations installed.

On 29 October 2003 Telefonica Moviles announced the launch of the first pre-commercial W-CDMA service in Spain. This service is based on the distribution of 2,500 UMTS PCMCIA cards to corporate customers in Spain, enabling them to access all W-CDMA 'Oficina MoviStar' data services (internet, intranet and email) from a laptop at speeds of up to 384Kbps.

Xfera revives plans to launch 3G services

On 20 November 2003 Antonio Canton, chief executive of Spanish mobile telecommunications group Xfera, announced the company's intention to launch its services after 2004. Spain's fourth 3G licensee again has begun to contact its original infrastructure providers, Nortel Networks and Ericsson, which previously installed nearly 70 base stations.

At the same time, Xfera is trying to close an infrastructure-sharing agreement with Vodafone and intends to reach similar agreements with Telefonica Moviles and Amena. When Xfera starts operating in the market it will have the right to use the GSM networks of these established Spanish operators in areas in which it has no coverage at a cost-based price.

Xfera has been struggling with a severe cash crisis in a tough telecoms market. There have also been continuing delays in the arrival of 3G technology in Spain, with services only now expected to be launched by Telefonica Moviles in the middle of 2004. Xfera's survival was thrown into doubt after the government threatened to fine the company if it did not come clean about its investment and business plans. Investors also threatened to jump ship and many analysts considered that



Xfera was finished. It seems that the company now expects a favourable government ruling, however, and is taking steps to revive its business.

Question marks over W-CDMA disappearing in Spain

The commercial launch of W-CDMA technology in Spain seems to be drawing closer. The Spanish telecoms ministry is working to iron out the problems being experienced by two of the four operators that have UMTS licences and on 2 January 2004 Juan Costa, Spain's science and technology minister, expressed his confidence that the wireless operators Telefonica Moviles, Vodafone, Amena and Xfera would all launch W-CDMA services before the end of 2004. Costa said that over the course of the first few months of 2004 the government would specify and update the conditions for operating UMTS services. The new, updated conditions will, crucially, allow operators to share networks but will otherwise maintain the general character of the initial set of requirements in terms of services and coverage of the population.

On 7 January 2004 the shareholders of the troubled fourth W-CDMA licensee, Xfera, which has yet to commence commercial activities, unanimously approved a EUR 26 million capital increase. It seems likely that this will allow the mobile operator, which is owned by ACS Sonera Telefonía Movil (which is in turn owned by the Spanish construction group ACS and TeliaSonera) and Vivendi Telecom International, among others, to begin operating in 2004. Nevertheless, the shareholders recognise that this will represent only the first phase and that more capital increases will be needed during 2004.

Meanwhile, Amena has called for reduced investment obligations as a result of plans to share its W-CDMA network with other operators and to delay installing infrastructure. It seems that the wireless operator is close to reaching an agreement with the government to reduce its UMTS investments, it is only remaining for the Council of State to pronounce on the legality of the agreement. This will allow to Amena, Spain's third largest mobile operator, to reduce its investments in, and commitments to, UMTS services and to postpone the deadline for reaching 95% coverage of the population from five years to 10 years. Amena is also seeking the elimination of all collateral investment requirements such as the creation of a risk capital group and UMTS work centres for a total of about EUR 500 million.

Only Amena and Xfera have asked the government for substantial changes to the commitments they undertook when they won UMTS licences in March 2000. Telefonica Moviles will not be changing its initial plans and Vodafone has requested only minor changes, meaning that the launch of 3G technology should go ahead on time (before the end of 2004) and that the operators on this occasion will live down the Spanish 'manana' concept.

Switzerland

Date	Subscribers
Q3 2002	5,669,000
Q4 2002	5,705,580
Q1 2003	5,792,000
Q2 2003	5,867,000
Q3 2003	6,001,000
Q4 2003	6,089,800

Tele2 and In&Phone awarded GSM-1800 licences in Switzerland

On 18 December 2003 the Swiss Federal Communications Commission (ComCom) announced that it had decided in principle to award two licences in the 1800MHz frequency band: one each to the companies In&Phone and Tele2. The licences are expected to be granted by February 2004. In&Phone will now receive 2 x 5.8MHz (29 channels) and Tele2 will receive 2 x 8.6MHz (43 channels). By



way of comparison, the three current GSM operators each have access to a bandwidth of about 2 x 25MHz.

According to ComCom, In&Phone intends to offer larger business customers (companies, administrations, international organisations, etc) local GSM networks via which internal communications inside buildings (in-house) or on a campus can be provided flexibly and at a low cost using mobile telephones. Low-radiation picocells will be used for in-house coverage.

Tele2, meanwhile, will focus on the individual customer market and wishes to provide GSM services (telephony, SMS, MMS, etc). Tele2 intends to offer its services across Switzerland via a national roaming agreement with an existing operator. Tele2 will construct its own infrastructure only in densely populated areas with a high volume of telecommunications traffic.

Switzerland's Federal Office of Communications (OFCOM) first invited tenders for the two GSM-1800 licences in July 2003 in order to stimulate competition in the Swiss market. The competition was based on a fixed set of criteria and the existing GSM operators were excluded from the tender process. The following seven candidatures were submitted at the end of September 2003 and were then evaluated in detail by OFCOM: Global Networks Switzerland AG, In&Phone SA, SITA, Swissphone Systems AG, Telesonique SA, Tele2 Telecommunication Services AG and Technocell AG.

The candidatures were assessed according to the following criteria: business plan and service plan, technical concept and implementation, the effect on stimulating the market and the degree of innovation, as well as the coherence and credibility of the project. The basic requirements for taking part in the competition were meeting the legal conditions for a licence and proving that financing of the project was assured. One significant factor in the tender process was the general public's opposition to the installation of a fourth mobile network with full national coverage due to worries about health hazards. Due to public pressure the Swiss government has implemented decrees which limit the amount of non-ionising radiation from base stations. In their tenders for the GSM licences both Tele2 and In&Phone were therefore very mindful of keeping both the number of new base stations and the 'visual pollution' created by them to a minimum.



Statistics and Data Tables

Cellular subscribers and networks (December 2003)

* Estimate

Operator	Network	System	On air	Sep 2003 Prepaid	Sep 2003 Total	Dec 2003 Prepaid	Dec 2003 Total
Albania				994,930	1,022,590	1,078,100	1,108,100
Albanian Mobile Communications	AMC Mobil	GSM-900	Jun 1996	572,380	586,120	614,300	629,000 *
Vodafone Albania		GSM-9/18	Aug 2001	422,550	436,470	463,800	479,100 *
Andorra				18,100	51,700	18,500	53,000
STA	Mobiland	GSM-900	Mar 1995	18,100	51,700 *	18,500	53,000
Armenia				40,970	75,890	44,100	81,600
Armentel		GSM-900	Jan 1998	40,970	75,890	44,100	81,600 *
Austria				3,285,580	7,056,600	3,347,300	7,214,060
Connect Austria	One	GSM-1800	Oct 1998	616,000	1,400,000	627,000	1,425,000 *
Hutchison 3G		W-CDMA	May 2003	0	7,500 *	0	11,700 *
Mobilkom	A1	GSM-9/18	Dec 1992	1,447,900	3,096,500	1,481,000	3,163,200 *
Mobilkom		W-CDMA	Apr 2003	0	1,600	0	2,260 *
T-Mobile Austria		GSM-9/18	Dec 1996	1,087,000	2,033,000	1,090,500	2,039,500 *
tele.ring		GSM-1800	May 2000	134,680	518,000	148,800	572,400 *
Azerbaijan				1,008,600	1,080,000	1,027,000	1,097,200
Azercell	Azercell	GSM-900	Dec 1996	793,400	845,000	843,000	897,200 *
Bakcell		GSM-900	Dec 1998	215,200	235,000 *	184,000	200,000
Belarus				87,400	907,200	96,600	1,131,480
Belcel	Diallog	CDMA-450	Feb 2003	0	8,000	0	11,200 *
Belcel		NMT-450	Apr 1993	0	19,900 *	0	19,900 *
MDC	VELCOM	GSM-900	Apr 1999	87,400	575,300 *	96,600	635,600 *
Mobile TeleSystems	MTS	GSM-9/18	Jun 2002	0	304,000	0	464,780
Belgium				4,814,110	7,656,710	4,926,640	7,810,370
BASE	Orange	GSM-1800	Mar 1999	674,910	941,220	672,300	937,600 *
Belgacom Mobile	Proximus	GSM-9/18	Jan 1994	2,431,200	4,207,240	2,460,200	4,257,400 *
Mobistar	Mobistar	GSM-9/18	Aug 1996	1,708,000	2,508,250	1,794,140	2,615,370
Bosnia Herzegovina				670,400	959,400	719,300	1,027,500
Muslim-Croat Federation - Eronet		GSM-900	Sep 2000	37,400	117,900 *	40,000	126,200
Muslim-Croat Federation - GSM BiH	Mobihitel	GSM-900	Oct 1996	313,000	460,500 *	329,700	485,100
Republika Srpska - Mobilna Srpska	Mobilna Srpska	GSM-900	Aug 1999	320,000	381,000	349,600	416,200 *
Bulgaria				1,616,160	3,016,650	1,722,200	3,204,200
Cosmo Bulgaria Mobile	GloBul	GSM-9/18	Sep 2001	495,360	805,950	564,000	917,700 *
Mobikom	Mobifon	NMT-450i	Dec 1993	69,800	117,800 *	65,200	110,000 *
MobilTel	M-TEL	GSM-900	Sep 1995	1,051,000	2,092,900 *	1,093,000	2,176,500 *
Croatia				2,071,500	2,548,100	2,147,700	2,633,500
HT Mobile	Cronet	GSM-900	Dec 1995	1,081,400	1,339,000	1,123,400	1,391,000 *
HT Mobile	Mobitel	NMT-450	Nov 1991	0	33,000 *	0	32,000
VIPnet		GSM-900	Jul 1999	990,100	1,176,100	1,024,300	1,210,500
Cyprus				249,900	594,400	270,600	630,100
CYTA	CYTAGSM	GSM-900	Apr 1995	222,100	517,200 *	242,700	552,700 *
Northern Cyprus - KKTCell	KKTCell	GSM-900	Jul 1999	27,800	77,200 *	27,900	77,400 *
Czech Republic				6,933,940	9,148,140	7,208,790	9,557,500
Cesky Mobil	Oskar	GSM-9/18	Mar 2000	847,060	1,438,140	881,790	1,547,000
Eurotel Praha	EuroTel GSM	GSM-9/18	Jul 1996	3,203,300	3,981,700	3,361,900	4,178,800
Eurotel Praha	EuroTel Classic	NMT-450	Sep 1991	6,580	37,300 *	6,300	35,700 *
T-Mobile	T-Mobile	GSM-9/18	Oct 1995	2,877,000	3,691,000	2,958,800	3,796,000 *
Denmark				1,405,300	4,809,000	1,450,200	4,988,900
Hi3G Denmark		W-CDMA	Oct 2003	0	0	0	5,600 *
Orange Denmark	Mobilix	GSM-9/18	Mar 1998	321,800	585,000	322,700	586,700 *
Sonofon	Sonofon	GSM-9/18	Mar 1992	267,100	1,355,000	277,700	1,408,500 *
TDC Mobil	TDK-GSM	GSM-9/18	Mar 1992	632,000	2,365,000	659,700	2,468,700 *
Telia Denmark		GSM-9/18	Jan 1998	184,400	504,000	190,100	519,400 *
Estonia				354,100	955,960	370,500	992,400
EMT	EMT-GSM	GSM-9/18	Sep 1993	168,700	463,800	173,000	475,700 *
Radiolinja	GSM 256	GSM-9/18	Jan 1995	0	163,160	0	166,200 *
Tele2	Tele2	GSM-900	Apr 1997	185,400	329,000	197,500	350,500 *

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Operator	Network	System	On air	Sep 2003 Prepaid	Sep 2003 Total	Dec 2003 Prepaid	Dec 2003 Total
Faroe Islands				18,700	36,650	20,300	38,640
Faroese Telecom		GSM-900	Oct 1998	13,700	29,100 *	13,900	29,400 *
Faroese Telecom		NMT-450	Jan 1989	0	1,300 *	0	1,240 *
KALL		GSM-9/18	Nov 2002	5,000	6,250 *	6,400	8,000 *
Finland				187,000	4,664,850	206,500	4,792,000
Finnish 2G	DNA Finland	GSM-900	Feb 2001	146,000	754,000	165,400	854,300 *
Radiolinja		GSM-9/18	Jan 1992	0	1,374,850	0	1,395,500 *
Sonera	Sonera GSM	GSM-9/18	Jun 1992	41,000	2,536,000	41,100	2,542,200 *
France				15,811,740	38,332,900	16,038,900	38,878,200
Bouygues Telecom	Bouygues	GSM-9/18	May 1996	2,083,140	6,069,640	2,110,100	6,148,200 *
Orange France	Itineris	GSM-9/18	Jun 1992	7,707,800	18,480,000	7,783,400	18,661,300 *
SFR	SFR	GSM-9/18	Apr 1993	6,020,800	13,783,260	6,145,400	14,068,700 *
Georgia				453,980	633,730	490,590	688,690
Geocell	Geocell	GSM-9/18	Mar 1997	104,500	275,000	115,300	303,400 *
Magticom	Magticom	GSM-9/18	Sep 1997	339,280	348,530	366,000	376,000 *
Megacom	Bee Line	AMPS	Jan 1995	10,200	10,200 *	9,290	9,290 *
Germany				30,556,990	60,178,600	31,265,900	61,597,800
E-Plus	E-Plus	GSM-1800	May 1994	3,656,950	7,326,880	3,778,100	7,569,700 *
O2	E2	GSM-1800	Oct 1998	2,271,000	5,251,000	2,373,800	5,488,800 *
T-Mobile	D1	GSM-900	Jul 1992	13,500,000	25,628,000	13,750,500	26,103,600 *
Vodafone D2	Vodafone D2	GSM-900	Jul 1992	11,129,040	21,972,720	11,363,500	22,435,700 *
Gibraltar				10,760	15,020	11,400	15,900
Gibraltar Telecom	GibTel	GSM-900	Jan 1995	10,760	15,020	11,400	15,900 *
Greece				6,005,080	9,464,900	6,293,400	9,897,200
Cosmote	Cosmote	GSM-9/18	Apr 1998	2,459,700	4,051,550	2,563,200	4,222,000 *
Infoquest	Q-Telecom	GSM-1800	Jun 2002	260,680	289,760	319,100	354,700 *
Panafon	Vodafone	GSM-9/18	Jul 1993	1,906,580	2,949,120	1,986,700	3,073,000 *
STET Hellas	TeleSTET	GSM-9/18	Jul 1993	1,378,120	2,174,470	1,424,400	2,247,500 *
Greenland				6,520	25,970	6,980	27,440
TeleGreenland		GSM-900	Dec 1998	6,520	24,200 *	6,980	25,900 *
TeleGreenland		NMT-900	Nov 1992	0	1,770 *	0	1,540 *
Guernsey				22,600	40,600	23,300	41,900
Cable & Wireless Guernsey Ltd	Guernsey Telecom	GSM-900	Apr 1996	22,600	40,600 *	23,300	41,900 *
Hungary				5,518,260	7,102,840	5,654,500	7,269,500
Pannon	Pannon GSM	GSM-9/18	Mar 1994	2,019,000	2,564,220	2,017,900	2,562,800 *
Vodafone		GSM-9/18	Dec 1999	955,020	1,118,940	1,051,400	1,231,900 *
Westel	Eurofon	GSM-9/18	Mar 1994	2,544,240	3,419,680	2,585,200	3,474,800 *
Iceland				106,400	274,020	115,000	293,310
Iceland Telecom	Siminn	GSM-9/18	Aug 1994	65,400	159,100	66,500	162,230
Iceland Telecom	Siminn	NMT-450	Jul 1986	0	23,920	0	23,480
Og Vodafone		GSM-900	Mar 2001	41,000	91,000	48,500	107,600 *
Ireland				2,285,130	3,206,770	2,323,600	3,260,400
Meteor Communications		GSM-9/18	Feb 2001	104,000	135,000	109,900	142,700 *
O2	Digifone	GSM-9/18	Mar 1997	901,000	1,274,000	917,000	1,296,600 *
Vodafone Ireland	Eircell Vodafone	GSM-9/18	Jul 1993	1,280,130	1,797,770	1,296,700	1,821,100 *
Isle of Man				46,000	67,000	48,500	70,600
Manx Telecom	Pronto GSM	GSM-900	Feb 1996	46,000	67,000	48,500	70,600 *
Italy				49,438,900	54,556,660	50,552,600	55,812,300
H3G		W-CDMA	Mar 2003	224,400	340,000	330,000	500,000 *
TIM	TIM	GSM-9/18	Oct 1992	22,537,390	25,251,000	22,966,100	25,731,300 *
TIM	TIM TACS	TACS	May 1990	656,000	800,000	574,600	700,700 *
Vodafone Omnitel	Omnitel	GSM-9/18	Dec 1995	17,279,110	18,765,660	17,664,400	19,184,100 *
Wind		GSM-1800	Mar 1999	8,742,000	9,400,000	9,017,500	9,696,200 *
Jersey				47,600	78,800	49,100	81,200
Jersey Telecoms	JT GSM	GSM-900	Dec 1994	47,600	78,800 *	49,100	81,200 *
Kazakhstan				776,500	1,218,310	834,400	1,309,610
Altel	Altel	N-AMPS	Sep 1994	27,000	47,400 *	26,700	46,800 *
GSM Kazakhstan	KCell	GSM-900	Feb 1999	630,000	837,000	678,000	900,800 *
Jarshy	Zharshi	AMPS	Aug 1998	0	5,210 *	0	5,210 *
Kar-Tel	K-Mobile	GSM-900	Feb 1999	119,500	328,700 *	129,700	356,800 *
Kirghizstan				31,100	112,100	29,300	132,900
BITEL		GSM-900	Sep 1998	31,100	94,700 *	29,300	114,400 *
Katel		US TDMA-800	Jul 1994	0	17,400 *	0	18,500 *
Kosovo				357,500	405,200	387,000	438,600
Vala 900		GSM-900	Feb 2000	357,500	405,200 *	387,000	438,600 *



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Operator	Network	System	On air	Sep 2003 Prepaid	Sep 2003 Total	Dec 2003 Prepaid	Dec 2003 Total
Latvia				536,500	1,212,970	580,600	1,297,000
LMT	LMT-GSM	GSM-9/18	Jan 1995	117,500	569,970	128,000	602,500
Tele2	Tele2	GSM-9/18	Mar 1997	419,000	643,000	452,600	694,500 *
Liechtenstein				0	6,360	0	6,840
Mobilkom		GSM-1800	Sep 2000	0	2,300	0	2,600
Telecom FL	NATEL	GSM-9/18	Apr/1999	0	4,060 *	0	4,240 *
Lithuania				1,009,200	1,980,000	1,091,500	2,122,100
Bité	Bité	GSM-9/18	Nov 1995	246,400	486,000	257,400	507,600 *
Omnitel	Omnitel GSM	GSM-9/18	Mar 1995	421,800	965,000	451,200	1,020,500 *
Tele2	Tele2	GSM-9/18	Dec 1999	341,000	529,000	382,900	594,000 *
Luxembourg				273,400	518,300	282,400	535,600
P&T Luxembourg	LuxGSM	GSM-9/18	Jun 1993	162,900	325,600 *	169,300	338,400 *
Tele2	TANGO	GSM-9/18	May 1998	110,500	192,700 *	113,100	197,200 *
Macedonia				417,140	510,850	474,000	576,100
Cosmofon		GSM-900	Jun 2003	48,580	51,260	77,900	82,200 *
Mobimak	Mobimak	GSM-900	Oct 1996	368,560	459,590	396,100	493,900 *
Malta				261,980	282,260	268,300	289,000
Mobisle Communications	go mobile	GSM-1800	Dec 2000	118,200	124,400 *	122,000	128,400 *
Vodafone		GSM-900	Jul 1997	143,780	157,860	146,300	160,600 *
Moldova				377,150	449,200	406,700	484,100
Dniester Moldavian Republic - Interdnestrc		CDMA-800	Jan 1999	0	19,800 *	0	21,000 *
Moldcell		GSM-900	Mar 2000	151,650	166,000	161,700	177,000 *
Voxtel	Voxtel	GSM-900	Oct 1998	225,500	263,400 *	245,000	286,100 *
Monaco				0	15,200	0	15,300
Monaco Telecom		GSM-900	Mar 1995	0	15,200 *	0	15,300 *
Montenegro				420,330	491,200	436,000	509,500
Monet	Monet	GSM-900	Jul 2000	165,530	190,680	170,800	196,700 *
ProMonte	ProMonte GSM	GSM-900	Jul 1996	254,800	300,520	265,200	312,800 *
Netherlands				7,398,110	12,315,840	7,499,000	12,500,400
KPN Mobile		GSM-9/18	Jul 1994	3,042,430	4,987,620	3,074,600	5,040,400 *
Orange	Dutchtone	GSM-1800	Jan 1999	703,800	1,144,000	712,000	1,157,300 *
T-Mobile Netherlands		GSM-1800	Feb 1999	991,000	1,840,000	1,047,200	1,944,300 *
Telfort		GSM-1800	Oct 1998	869,200	1,156,400 *	854,400	1,136,600 *
Vodafone Libertel	Vodafone	GSM-9/18	Sep 1995	1,791,680	3,187,820	1,810,800	3,221,800 *
Norway				1,700,000	3,643,000	1,717,900	3,678,300
Netcom	NetCom	GSM-9/18	Sep 1993	580,000	1,279,000	599,000	1,320,800 *
Telenor Mobil	Telenor Mobil	GSM-9/18	May 1993	1,120,000	2,324,000	1,118,900	2,321,700 *
Telenor Mobil		NMT-450	Nov 1981	0	40,000	0	35,800 *
Poland				8,909,580	16,251,620	9,413,700	17,164,720
Centertel	Idea	GSM-9/18	Mar 1998	3,113,000	5,346,000	3,316,500	5,695,400 *
Centertel		NMT-450i	Jun 1992	0	7,000	0	5,220 *
Polkomtel	Plus GSM	GSM-9/18	Oct 1996	2,730,000	5,089,240	2,864,100	5,339,200 *
Polska Telefonia Cyfrowa	Era GSM	GSM-9/18	Sep 1996	3,066,580	5,809,380	3,233,100	6,124,900 *
Portugal				7,487,330	9,521,400	7,665,000	9,745,700
Optimus	Optimus	GSM-9/18	Sep 1998	1,570,800	1,974,720	1,603,200	2,015,500 *
TMN	Telemovel	GSM-9/18	Oct 1992	3,927,920	4,691,220	4,031,600	4,815,000 *
Vodafone Telecel	Vodafone	GSM-9/18	Oct 1992	1,988,610	2,855,460	2,030,200	2,915,200 *
Romania				3,738,560	6,108,410	4,306,910	7,038,100
CosmoRom		GSM-1800	Mar 2000	49,620	84,330	48,900	83,100 *
MobiFon	Connex GSM	GSM-900	Apr 1997	1,866,110	2,962,080	2,177,910	3,457,000
Orange Romania	Orange	GSM-900	Jun 1997	1,822,830	2,905,000	2,080,100	3,315,000
Telemobil	Zapp Mobile	CDMA-450	Dec 2001	0	157,000	0	183,000 *
Russia				5,545,400	10,431,700	6,062,200	11,427,600
Moscow: KB Impuls	Bee Line GSM	GSM-9/18	Jun 1997	4,150,300	4,949,300	4,535,400	5,408,500 *
Moscow: Mobile TeleSystems	MTS	GSM-9/18	Jul 1994	940,400	4,572,400 *	1,030,800	5,011,900 *
Moscow: Moscow Cellular Communications	MCC	NMT-450	Dec 1991	0	62,300 *	0	60,700 *
Moscow: Personal Communications	SONET	CDMA-800	Dec 1998	0	91,600 *	0	96,100 *
Moscow: Sonic Duo	MegaFon	GSM-9/18	Nov 2001	329,600	631,000 *	387,600	742,000 *
Moscow: VimpelCom	Bee Line 800	US TDMA-800	Jun 1994	125,100	125,100 *	108,400	108,400 *
St Petersburg: Delta Telecom	SKYLINK	CDMA-450	Dec 2002	0	28,800 *	0	38,100 *
St Petersburg: Delta Telecom	Delta Telecom	NMT-450	Jul 1991	0	88,200 *	0	86,200 *
St Petersburg: North-West GSM	MegaFon	GSM-9/18	Dec/94	726,800	1,758,130	864,500	1,921,200 *
St Petersburg: St Petersburg Telecom	Tele2	AMPS	Jul 1994	38,500	45,800	39,200	46,700 *
St Petersburg: St Petersburg Telecom	Tele2	GSM-1800	Jul/2003	0	11,000	0	21,500 *
St Petersburg: Telecom XXI	MTS	GSM-9/18	Dec 2001	280,000	1,055,100	313,700	1,182,100 *
St Petersburg: VimpelCom	Bee Line GSM	GSM-9/18	Apr 2003	160,600	186,000 *	263,600	303,000 *
Other - AMPS		AMPS		0	556,210	0	578,710
Other - CDMA		CDMA		0	318,110	0	342,200

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Russia				5,545,400	10,431,700	6,062,200	11,427,600
Other - GSM		GSM		2,156,540	15,466,690	2,443,950	18,240,030
Other - NMT-450		NMT		0	333,980	0	325,800
Other - US TDMA		US TDMA		0	286,960	0	294,420
Serbia				2,796,240	3,060,230	3,033,500	3,272,150
Mobtel	Mobtel 063	GSM-900	Nov 1996	1,171,000	1,398,700 *	1,300,000	1,500,000
Mobtel		NMT-900	Nov 1995	0	1,640 *	0	1,650
Telekom Srbija		GSM-900	Aug 1998	1,625,240	1,659,890	1,733,500	1,770,500 *
Slovak Republic				2,198,800	3,436,100	2,300,100	3,586,700
EuroTel Bratislava	Eurotel GSM	GSM-9/18	Feb 1997	1,058,300	1,454,770	1,121,900	1,542,200 *
EuroTel Bratislava		NMT-450	Sep 1991	0	2,250	0	0
Orange	Globtel	GSM-9/18	Jan 1997	1,140,500	1,979,080	1,178,200	2,044,500 *
Slovenia				914,130	1,828,750	931,970	1,873,360
Mobitel		GSM-9/18	Jul 1996	640,830	1,336,920	640,370	1,361,940
Mobitel		NMT-450	Nov 1991	0	40,530	0	40,720
Si.mobil		GSM-9/18	Mar 1999	195,700	354,300	204,200	361,500
Western Wireless	Vega	GSM-1800	Dec 2001	77,600	97,000	87,400	109,200 *
Spain				21,202,850	35,609,760	21,773,770	36,566,300
Amena	Amena	GSM-1800	Jan 1999	4,561,870	7,667,000	4,798,300	8,064,400 *
Telefónica Móviles	MoviStar	GSM-9/18	Jul 1995	11,595,810	19,065,700	11,769,900	19,352,000 *
Telefónica Móviles	MoviLine	TACS	Apr 1990	9,190	42,000	6,170	28,200 *
Vodafone España	Vodafone	GSM-9/18	Oct 1995	5,035,980	8,835,060	5,199,400	9,121,700 *
Sweden				4,793,480	8,474,590	4,906,800	8,672,400
Hi3G		W-CDMA	May 2003	0	13,600 *	0	23,000 *
Tele2	Comviq GSM	GSM-9/18	Sep 1992	2,456,250	3,275,000	2,526,100	3,368,100 *
Telia Mobitel	Telia Mobitel GSM	GSM-9/18	Nov 1992	1,922,000	3,746,000	1,955,400	3,811,000 *
Telia Mobitel	Telia Mobitel	NMT-450	Oct 1981	0	133,000	0	131,600 *
Vodafone Sweden	Europolitan	GSM-9/18	Sep 1992	415,230	1,306,990	425,300	1,338,700 *
Switzerland				2,433,700	6,001,000	2,472,600	6,089,800
Orange		GSM-1800	Jun 1999	369,200	1,055,000	372,100	1,063,200 *
Swisscom Mobile	Natel	GSM-9/18	Mar 1993	1,383,000	3,736,000	1,401,000	3,784,700 *
TDC Switzerland	sunrise	GSM-9/18	Dec 1998	681,500	1,210,000	699,500	1,241,900 *
Tadjikistan				0	15,480	0	18,440
Somoncom	Somoncom	GSM-900	Mar 2000	0	3,610 *	0	3,980 *
Tadjik Tel	Touchfone	AMPS	Dec 1996	0	2,080 *	0	2,160 *
TT Mobile	Mobile Lines of Tadjikista	GSM-9/18	Dec 2001	0	9,790 *	0	12,300 *
Turkey				19,913,180	27,775,000	20,949,900	29,014,200
IS TIM Telekomunikasyon IS-TIM	Aria	GSM-1800	Mar 2001	1,874,880	1,953,000	2,069,000	2,155,200 *
Telsim		GSM-900	Mar 1994	3,949,400	6,582,300 *	4,007,500	6,679,100 *
Turk Telekom	Aycell	GSM-1800	Dec 2001	588,900	981,500 *	673,400	1,122,300 *
Turk Telekom		NMT-450	Oct 1986	0	58,200 *	0	57,600 *
Turkcell		GSM-900	Feb 1994	13,500,000	18,200,000	14,200,000	19,000,000
Turkmenistan				1,240	10,110	1,220	10,660
Barash Communication Technologies		AMPS	Nov 1994	0	5,800 *	0	6,450 *
Barash Communication Technologies		GSM-900	Sep 2000	1,240	4,310 *	1,220	4,210 *
UK				34,176,370	50,826,600	34,636,900	51,583,700
Hutchison 3G	3	W-CDMA	Mar 2003	0	194,600 *	0	289,400 *
O2	Cellnet	GSM-9/18	Jul 1994	8,289,000	12,623,000	8,485,700	12,922,600 *
Orange	Orange	GSM-1800	Apr 1994	9,024,000	13,371,000	9,089,100	13,467,500 *
T-Mobile	T-Mobile	GSM-1800	Sep 1993	9,863,000	12,386,000	10,028,200	12,593,500 *
Vodafone	Vodafone	GSM-9/18	Dec 1991	7,000,370	12,252,000	7,033,900	12,310,700 *
Ukraine				3,987,700	5,234,500	4,361,200	5,709,250
Digital Cellular Communications	DCC	US TDMA-800	Oct 1996	0	82,400 *	0	82,600 *
Golden Telecom		GSM-1800	Dec 1996	12,700	38,000 *	15,000	41,000
Kyivstar GSM		GSM-9/18	Dec 1997	2,037,000	2,512,000	2,213,500	2,729,700 *
Ukrainian Mobile Communications		GSM-9/18	Sep 1997	1,938,000	2,550,000	2,132,700	2,806,200 *
Ukrainian Mobile Communications		NMT-450	Jul 1993	0	13,500 *	0	9,950 *
Ukrainian Radio Systems	WellCOM	GSM-900	Oct 1998	0	38,600 *	0	39,800 *
Uzbekistan				0	330,500	0	362,160
Buztel		GSM-900	Aug 1997	0	21,000 *	0	21,700 *
Coscom		GSM-900	Jun 1997	0	51,100 *	0	54,200 *
Daewoo Unitel Company	Unitel	GSM-900	Oct 1997	0	80,700 *	0	86,900 *
Rubicon Wireless Communications	Perfectum Mobile	CDMA-800	Sep 2001	0	19,200 *	0	21,600 *
Rubicon Wireless Communications	U-Tel	US TDMA-800	Aug 1996	0	1,000	0	860 *
Uzdunrobita	Uzdunrobita GSM	GSM-9/18	Nov 2002	0	82,000 *	0	102,000
Uzdunrobita	Uzdunrobita D-AMPS	US TDMA-800	1994	0	51,600 *	0	50,000
UZMACOM	Uzmacom	GSM-900	Aug 1997	0	23,900 *	0	24,900 *
Total				269,086,560	446,773,170	278,275,920	463,705,540



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Israel - Cellular subscribers and networks (December 2003)

Operator	Network	System	On air	Sep 2003 Prepaid	Sep 2003 Total	Dec 2003 Prepaid	Dec 2003 Total
Cellcom Israel		GSM-1800	July 2002	495,000	660,000	597,200	796,200 *
Cellcom Israel		US TDMA-800	Dec 1994	500,000	1,630,000	453,300	1,477,700 *
Partner Communications	Orange	GSM-900	Jan 1999	606,000	2,032,000	625,500	2,097,500 *
Pelephone		AMPS	1986	40,000	108,000	0	0
Pelephone		CDMA-800	Jan 1999	606,500	1,783,000	644,800	1,895,600 *
Total				2,247,500	6,213,000	2,320,800	6,267,000

Cellular systems summary (December 2003)

System	Country	Dec 2003	Share
AMPS	Georgia, Kazakhstan, Russia, Tadjikistan, Turkmenistan	695,320	0.1%
CDMA-450	Belarus, Romania, Russia	234,150	0.1%
CDMA-800	Moldova, Russia, Uzbekistan	479,050	0.1%
GSM-1800	Austria, Belgium, Germany, Greece, Italy, Liechtenstein, Malta, Netherlands, Romania, Russia, Slovenia, Spain, Switzerland, Turkey, UK, Ukraine	69,867,580	15.1%
GSM-900	Albania, Andorra, Armenia, Azerbaijan, Belarus, Bosnia Herzegovina, Bulgaria, Croatia, Cyprus, Estonia, Faroe Islands, Finland, Germany, Gibraltar, Greenland, Guernsey, Iceland, Isle of Man, Jersey, Kazakhstan, Kirghizstan, Kosovo, Macedonia, Malta, Moldova, Monaco, Montenegro, Romania, Russia, Serbia, Tadjikistan, Turkey, Turkmenistan, Ukraine, Uzbekistan	103,530,530	22.3%
GSM-9/18	Albania, Austria, Belarus, Belgium, Bulgaria, Czech Republic, Denmark, Estonia, Faroe Islands, Finland, France, Georgia, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Netherlands, Norway, Poland, Portugal, Russia, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Tadjikistan, UK, Ukraine, Uzbekistan	285,804,170	61.6%
NMT-450	Belarus, Bulgaria, Croatia, Czech Republic, Faroe Islands, Iceland, Norway, Poland, Russia, Slovak Republic, Slovenia, Sweden, Turkey, Ukraine	975,910	0.2%
NMT-900	Greenland, Serbia	3,190	0.0%
TACS	Italy, Spain	728,900	0.2%
US TDMA-800	Kirghizstan, Russia, Ukraine, Uzbekistan	554,780	0.1%
W-CDMA	Austria, Denmark, Italy, Sweden, UK	831,960	0.2%
Total		463,705,540	100.0%



Cellular market penetration (December 2003)

Penetration per 1,000 population

Country	Analogue subscribers	Digital subscribers	Total subscribers	Population (m)	Penetration
Albania	0	1,108,100	1,108,100	3.60	307.89
Andorra	0	53,000	53,000	0.07	768.12
Armenia	0	81,600	81,600	3.32	24.57
Austria	0	7,187,160	7,187,160	8.20	876.91
Azerbaijan	0	1,097,200	1,097,200	7.83	140.13
Belarus	19,900	1,111,580	1,131,480	10.33	109.59
Belgium	0	7,771,900	7,771,900	10.30	754.77
Bosnia Herzegovina	0	1,027,500	1,027,500	3.98	258.10
Bulgaria	110,000	3,094,200	3,204,200	7.50	427.11
Croatia	25,000	2,609,100	2,634,100	4.42	596.22
Cyprus	0	630,100	630,100	0.77	815.14
Czech Republic	35,700	9,411,400	9,447,100	10.24	922.21
Denmark	0	4,988,900	4,988,900	5.39	925.41
Estonia	0	992,400	992,400	1.41	705.83
Faroe Islands	1,240	37,400	38,640	0.05	840.00
Finland	0	4,837,900	4,837,900	5.19	931.62
France	0	38,878,200	38,878,200	60.09	646.96
Georgia	9,290	679,400	688,690	4.93	139.84
Germany	0	61,597,800	61,597,800	83.59	736.88
Gibraltar	0	15,900	15,900	0.03	588.89
Greece	0	9,897,200	9,897,200	10.67	927.31
Greenland	1,540	25,900	27,440	0.06	490.00
Guernsey	0	41,900	41,900	0.06	654.69
Hungary	0	7,294,500	7,294,500	10.03	727.20
Iceland	23,500	268,900	292,400	0.28	1,040.57
Ireland	0	3,260,400	3,260,400	3.94	826.88
Isle of Man	0	70,600	70,600	0.07	954.05
Italy	700,700	55,111,600	55,812,300	57.77	966.11
Jersey	0	81,200	81,200	0.09	902.22
Kazakhstan	52,010	1,257,600	1,309,610	16.80	77.97
Kirghizstan	0	132,900	132,900	4.92	27.02
Kosovo	0	438,600	438,600	2.50	175.30
Latvia	0	1,297,900	1,297,900	2.34	554.18
Lithuania	0	2,122,100	2,122,100	3.59	591.61
Luxembourg	0	535,600	535,600	0.46	1,171.99
Macedonia	0	576,100	576,100	2.07	278.44
Malta	0	289,000	289,000	0.40	720.70
Moldova	0	484,100	484,100	4.44	109.06
Monaco	0	15,300	15,300	0.03	478.13
Montenegro	0	509,500	509,500	0.68	748.16
Netherlands	0	12,500,400	12,500,400	16.19	771.96
Norway	35,800	3,642,500	3,678,300	4.56	807.00
Poland	5,220	17,159,500	17,164,720	38.62	444.44
Portugal	0	9,745,700	9,745,700	10.11	963.87
Romania	0	7,038,100	7,038,100	22.25	316.35
Russia	1,108,450	33,657,750	34,766,200	144.53	240.55
Serbia	1,560	3,211,200	3,212,760	9.98	321.92
Slovak Republic	0	3,586,700	3,586,700	5.43	660.17
Slovenia	40,720	1,836,540	1,877,260	1.94	969.66
Spain	28,200	36,538,100	36,566,300	40.13	911.13
Sweden	131,600	8,540,800	8,672,400	8.88	976.73
Switzerland	0	6,089,800	6,089,800	7.32	831.49
Tadjikistan	2,160	16,280	18,440	6.92	2.66
Turkey	57,600	28,997,800	29,055,400	68.48	424.27
Turkmenistan	6,450	4,210	10,660	4.82	2.21
UK	0	51,583,700	51,583,700	59.95	860.42
Ukraine	9,950	5,696,900	5,706,850	47.90	119.14
Uzbekistan	0	362,160	362,160	26.19	13.83
Total	2,406,590	461,129,780	463,536,370	876.65	528.76

Country	Analogue subscribers	Digital subscribers	Total subscribers	Population (m)	Penetration
Israel	0	6,267,000	6,267,000	6.17	1,016.38

