



HELLENIC REPUBLIC

NATIONAL TELECOMMUNICATIONS AND POST COMMISSION

Allotment of Spectrum in the Frequency Bands of 2nd and 3rd Generation Mobile Communications Systems in Greece and Granting of Relevant Individual Licenses

Public Consultation Paper

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Appendix 1 – Summary of Consultation Paper Questions



NOTICE

This Public Consultation Paper has been prepared by the Greek National Telecommunications and Post Commission (abbreviated as EETT in Greek) in connection with the procedure of assigning licenses for 2nd and 3rd generation mobile telecommunications networks in Greece.

EETT plans to offer 2nd and 3rd generation (abbreviated as 2G and 3G, respectively) mobile telecommunications network licenses later this year. The implementation of the new 2G and 3G networks in Greece marks an important step in introducing new advanced services into the Greek mobile telecommunications market.

The new services that will be available to the consumer and business markets are the Internet, with high quality telephony, as well as data and multimedia services. The new 3rd generation technology will enable large amounts of information to be transmitted almost instantaneously and new enhanced applications like Internet browsing, electronic transactions and even mobile video conferencing will become available.

EETT invites interested parties to present comments and views on the coming licensing process and license terms and conditions by responding to the questions addressed in this Public Consultation Paper. To express other comments and views that are not covered by the questions posed in the Paper, interested parties should identify such issues and address them appropriately.

The answers and/or any comments and views should be submitted stating the author's details and affiliation, in the Greek or English language, both in printed and electronic format no later than the 26 March 2001 at 12 p.m. Greek time.

Responses to the Public Consultation Paper should be marked as follows:

Response to Public Consultation Paper for the License Assignment of 2nd and 3rd Generation Mobile Network in Greece

The response should be submitted to the following address:

EETT,

60 Kifisias Avenue,

GR – 151 25 Maroussi, Athens,

Greece

Electronic mail address: 3G@eett.gr



1 Introduction

The Ministry of Transport and Communications and EETT will later this year conduct the process of assigning licenses for 2nd and 3rd generation mobile telecommunications networks in Greece hereafter referred as 2G and 3G licenses. The National Telecommunications and Post Commission (EETT) is responsible for carrying out the assignment process. The objective is to comply with the European Union's requirement of introducing 3G mobile telecommunications network in the member states no later than 2002.

The purpose of this consultation paper is for EETT to receive views and comments from professional and industrial bodies and other interested parties regarding terms and conditions for the assignment process.

With the assignment of new 2G and 3G mobile licenses the Greek government aims at:

- Encouraging and ensuring the delivery of advanced mobile telecommunications services of high quality to consumers and businesses nationwide.
- Encouraging and ensuring maximum added value and efficient resource utilisation in the telecommunications sector.
- Promoting competition in the 2G and 3G mobile market.

In order to satisfy the above aims and objectives, it is important to define a harmonised framework for the assignment of the remaining 2G and new 3G mobile telecommunications network licenses.

2 Market Issues

2.1 International Development

The licensing process for the provision of third generation (3G) IMT-2000 networks is well underway, as the majority of European Union countries have awarded UMTS licences.

2.1.1 Europe

European Union countries are expected to align with the EU timetable and enable 3G mobile telecommunications networks by January 2002. It is also the intention of EETT to meet the objectives of EU in terms of enabling the 3G mobile telecommunications network operators in Greece to launch services in their network by end of year 2002.

An updated overview of the European 3G licensing process is summarised in the document "IMT-2000 Licensing Conditions and Status. A selected regional overview", dated December 2000.



Individual country details for Europe are understood to be as follows:

Country	Number (and type) of licenses	License Award	Minimum Coverage	Licensing process + notes	Issue of Tender/timing	Commercial Launch
Austria	2x60MHz + 25MHz unpaired to be awarded to between 4 & 6 licenses	Q4 2000	25% pop by end 2003	Auction with initial pre-qualification. 6 Licenses awarded	License tender closed 13.9.00. Auction completed 06/11/00.	Q1 2002
Belgium	Three participants will each receive 25% of allocated bandwidth. Remaining 25% will remain unallocated until interested parties emerges. Duration 20 years.	Expected early 2001	Subject to confirmation	Auction with EURO150m reserve price per license	Auction starts 7 th March 2001. Three entities have shown their interest: <ul style="list-style-type: none"> • KPN • Belgacom • Mobistar 	2002
Denmark	Probably 4 National licenses	October 2001 likely	Yes, likely	Auction	Q1 2001	2002
Finland	4 national licenses awarded	Completed March 1999		Beauty contest	Completed	Jan 2002
France	There will be a second round to bring the number of license holders up to four (4) Valid 15 years.	June 2001	Yes, but not yet clearly defined; possibly according to population density	Beauty contest, with fixed cost at FFR32.5 billion per license.	Criteria announced end June 2000. Bidding opens end January 2001. Two (2) bids received. <ul style="list-style-type: none"> • France Telecom • SFR 	1.1.2002
Germany	Complete 5 operators 2 tranches of 2x5 MHz + 5 MHz unpaired 1 operator 2 tranches of 2x5 MHz	Completed 17.8.2000	25% of pop till end of 2003, 50% till end of 2005.	Auction completed 18.8.00 6 licenses awarded	Auction commenced 31.7.2000.	2002
Greece	Not yet decided	Q3 2001	To be considered	2G spectrum will be offered simultaneously	Public inquiry opens February 2001	Within 2002
Ireland	4 National licenses 1 Class A license with minimum coverage 80% of population. 3 Class B licenses with minimum demographical coverage of 53%.	End May 2001		Beauty contest.	Contest began mid-Nov 2000.	
Italy	5 National licenses 2x10 + 5 MHz each Valid 15 years	License awards 27.10.00	None	5 participants have bid for 5 licenses.	Auction finished.	2002
The Netherlands	5 National, licenses valid until 2016: Three 2x10 + 5MHz Two 2x15MHz	Completed 24.7.00	Phased coverage within defined timeframe. 60% of population within 5 years	Auction – completed 5 licenses awarded	Auction began 10.7.2000.	By 1.1.2002
Norway	4 National licenses	Complete		Beauty contest with NOK 20 million per year plus NOK 100 million one-off fixed charge per operator. 4 licenses awarded.	Complete 4.12.2000	-



Country	Number (and type) of licenses	License Award	Minimum Coverage	Licensing process + notes	Issue of Tender/timing	Commercial Launch
Portugal	4 National licenses. •TELECEL •TMN •ONI WAY •OPTIMUS Duration 15 years	20% of pop within 1 year of launch; 40% pop within 3 years, 60% within 5 years.	Beauty contest with Escudo 20 billion fixed cost, based on technical ability.	Completed 19.12.2000. Flat fee of ES 20 Bn (USD 87,32 Millions)	End 2000	1.1.2002
Spain	4 National licenses awarded	All cities over 250,000 inhabitants	Beauty contest. License awarded to three incumbent GSM operators.	Completed 13.3.2000	-	1.8.2001
Sweden	4 National licenses at 2x15MHz each plus additional 5MHz unpaired per operator. *NB regional licenses may also be offered		Beauty contest based on business credentials plus coverage and roll-out commitments. SEK100,000 fixed fee per applicant.	16.4.2000 4 licences awarded	16.12.2000	2002
Switzerland	4 National licenses •SWISSCOM •DIAX •ORANGE TELEFONICA	50% of population by end 2004	Auction raised SFR 205 million	Auction delayed due to restructuring and withdrawn bidders. Restarted 6.12.2000	Process completed.	1.1.2002
UK	5 National licenses awarded	By 31.12.07: coverage of 80% of pop	Auction, raising UKP 23 billion.	Auction began March 2000. Licenses awarded to four incumbent GSM operators plus new entrant.	Completed 27.4.00	1.1.2002

2.1.2 Rest of the World

Information about the situation in the countries outside Europe as of 18 February 2001 is available in the web site of the UMTS Forum www.umts-forum.org/licensing.html.

2.2 The Greek Mobile Market

2.2.1 Introduction

Three 2G mobile telecommunications network licenses have been issued in Greece. Panafon and TeleStet have been awarded GSM 900 licenses while Cosmote has been awarded a DCS 1800 license.

Table 1 shows the current holders of mobile telecommunication network licences in Greece:

	PANAFON	OTE	TELESTET
Award date of license	30 Sept 1992	Dec 1995	30 Sept 1992
Transfer of License to COSMOTE		May 1997	
Launch Date	1-7-1993	6-4-1998	29-6-1993

Table 1 – 2G Mobile Telecommunications Operators



2.2.2 License Conditions for Issued 2G Mobile Network Licenses

There is no provision of dual GSM 900/DCS1800 services.

2.2.2.1 Service Requirements

Mobile network operators in Greece are authorized to provide by means of the GSM/DCS network the following services:

- Transmission, termination and carrying of all Teleservices, Bearer Services and Supplementary Services
- Cellular services to user of other cellular mobile systems (including international roaming services)
- Lease of excess capacity on the microwave or cable facilities used to connect network-switching points in the GSM network.

2.2.2.2 Coverage Requirement

Mobile network operators are obliged to provide Cellular Services within the territory of Greece encompassing at least 85% of the population and 75% of the major road network.

Timetable for cellular service coverage required by the end of the year (following license effective date):

1. Greater Attica area; islands of Saronicos Gulf	1.5 (year)
2. Aegean and Ionian Islands	3
3. Great Thessaloniki area; Athens – Thessaloniki road	3
4. Greater Patras area; Athens- Patras road	3
5. Crete and the Dodecanese	4
6. Rest of country as per coverage requirement	6

2.2.2.3 Network Access Requirements

The new telecommunications Act 2867/2000 provides that EETT must impose national roaming on mobile network operators by 31 December 2001.

The status for national roaming and/or other forms of access to mobile networks is based on commercial agreements between the involved parties.

At present national roaming services are not being offered by the existing mobile network operators in Greece.

2.2.3 Market Evolution

Table 2 shows the mobile market evolution in Greece in terms of growth in number of network operators, number of mobile subscribers, penetration rate and traffic volume from 1997 to 2000:



	1997	1998	1999	2000
Number of Network Operators	2	3	3	3
Type of Network Operators	2 GSM 900	2 GSM 900 1 DCS 1800	2 GSM 900 1 DCS 1800	2 GSM 900 1 DCS 1800
Number of Subscribers	938,038	2,056,082	3,903,954	5,932,000
Penetration Rate	8,9%	19,6%	37,1%	56%
Outgoing Traffic (in millions minutes)	1,214	2,003	3,457	N/A

Table 2 - Mobile Market Evolution in Greece

2.2.4 Network Access

The most common way of providing telecommunications services is through the marketing and sales channels of the licensed mobile operators. Mobile operators define their own product and services, develop tariff plans, as they market and sell their services with their own brand. Distribution and sale of services are operated through a number of different channels, e.g. own shops, customer service centre, different retailer outlets or through the Internet. Nevertheless, irrespectively of the distribution channel, the services offered are the same.

In Greece, in addition to the three operators selling services directly to the potential customers, there are today 17 resellers at the retail level. These resellers have normally contracts with licensed operators on an exclusive basis. The terms of the contract leave resellers very little choice and flexibility to determine their own pricing policy.

The commercial terms and conditions for this business are for the operators and resellers concerned to settle. Resellers are free to negotiate commercial terms and conditions with the mobile operators, to the extent that competition law, consumer protection law and obligations of the operators under Presidential Decree 181/99 implementing Directive 98/10/EC, are not infringed. A reseller is contractually allowed limited power to define his own subscription types and tariffs, being to a large extent tied to the products provided by the mobile operator. The reseller has to use the mobile operator's SIM-card. This implies that the reseller is tied to the international roaming agreements of the mobile operator.

Table 3 below shows the development and name of resellers in Greece:

	1997	1998	1999	2000
PANAFON	CITICOM	CITICOM	CITICOM	CITICOM
	UNIFON	UNIFON	UNIFON	UNIFON
	VIAFON	VIAFON	VIAFON	VIAFON
	PANAVOX	PANAVOX	PANAVOX	PANAFON EMPORIKI
	KORASSIDIS	KORASSIDIS	KORASSIDIS	KORASSIDIS



			MOBITEL	MOBITEL
COSMOTE		ALTCOM	ALTCOM	ALTCOM
		SPACEPHONE	SPACEPHONE	SPACEPHONE
		SANYO	SANYO	SANYOCOM
		KLIMAPHONE	KLIMAPHONE	KLIMAPHONE
		GERMANOS	GERMANOS	GERMANOS
		OTE	OTE	OTE
			BENROUBI	BENROUBI NET
			PLAISIO	PLAISIO
				COSMOTE
TELESTET				TELESTET EXCLUSIVE
				GERMANOS

Table 3 - Resellers in Greece

In recent years, it has been observed that requests are being received by telecommunication regulatory authorities in several countries for permitting independent service providers to access the mobile operators radio network in order to develop and sell product and services competing directly with the mobile operators. This type of access could be regarded as unbundling of the radio subsystem in the mobile telecommunications network, and will to some extent be analogous to local loop unbundling (LLU). A service provider with this kind of access to the mobile telecommunications network is called a Mobile Virtual Network Operator (MVNO).

Different possible scenarios exist regarding how an MVNO could make use of the infrastructure of a mobile telecommunications network operator. In some cases an MVNO may only want to lease capacity in the radio transmitting part of the mobile telecommunications network, and implement other necessary network elements himself, such as switches, location registers, IN platform and other service nodes. In this way the MVNO is capable of developing his own products and services. In other cases an MVNO may wish to utilise more of the mobile network operator's infrastructure. The possibility for the MVNO to differentiate his services from the mobile network operator will then be less, and the difference from a reseller would be minimal.

Currently, there are no MVNOs in the Greek market.

2.2.5 Population Coverage

Table 4 shows the growth of population coverage in Greece for the three existing 2G mobile telecommunications network operators.



	1997	1998	1999	2000
PANAFON	94.1%	95.2%	95.2%	98%
COSMOTE	0%	92%	92%	98%
TELESTET	94%	95%	95,5%	98%

Table 4 - Growth of Population Coverage in Greece

2.2.6 Market Share

This section describes the development of the market share in terms of number of subscribers and turnover for the existing 2G mobile telecommunications network operators.

Table 5 shows the total subscriber growth and the equivalent percentage growth for the three existing 2G mobile telecommunications network operators in Greece from year-end 1997, when Cosmote launched their service, to year-end 2000:

	1997		1998		1999		2000	
PANAFON	547,000	58%	1,068,000	52%	1,663,209	43%	2,226,000	37.5%
TELESTET	391,000	42%	689,000	33.5%	1,182,751	30%	1,645,342	27.8%
COSMOTE			299,000	14.5%	1,057,994	27%	2,061,011	34.7%
TOTAL	938,000		2,056,000		3,903,954		5,932,000	

Table 5 - Growth in Number of Greek Mobile 2G Subscribers

Table 6 depicts the growth in total turnover in the mobile market in Greece and percentage growth in turnover for the three existing networks operators from year-end 1997 to year-end 2000.

	1997		1998		1999		2000	
PANAFON	353	60.3%	454	53.2%	584	42.1%	794.3 ¹	49%
TELESTET	232	39.7%	350	41.0%	447	32.3%	221.36 ²	14%
COSMOTE			50	5.8%	355	25.6 %	608	37%
TOTAL	585		854		1,386		1,612.66	

*Turnover in million Euro

¹ Obtained from Panafon annual report – year end 31 March 2000 (converted from GRD to EURO at exchange rate of 340)

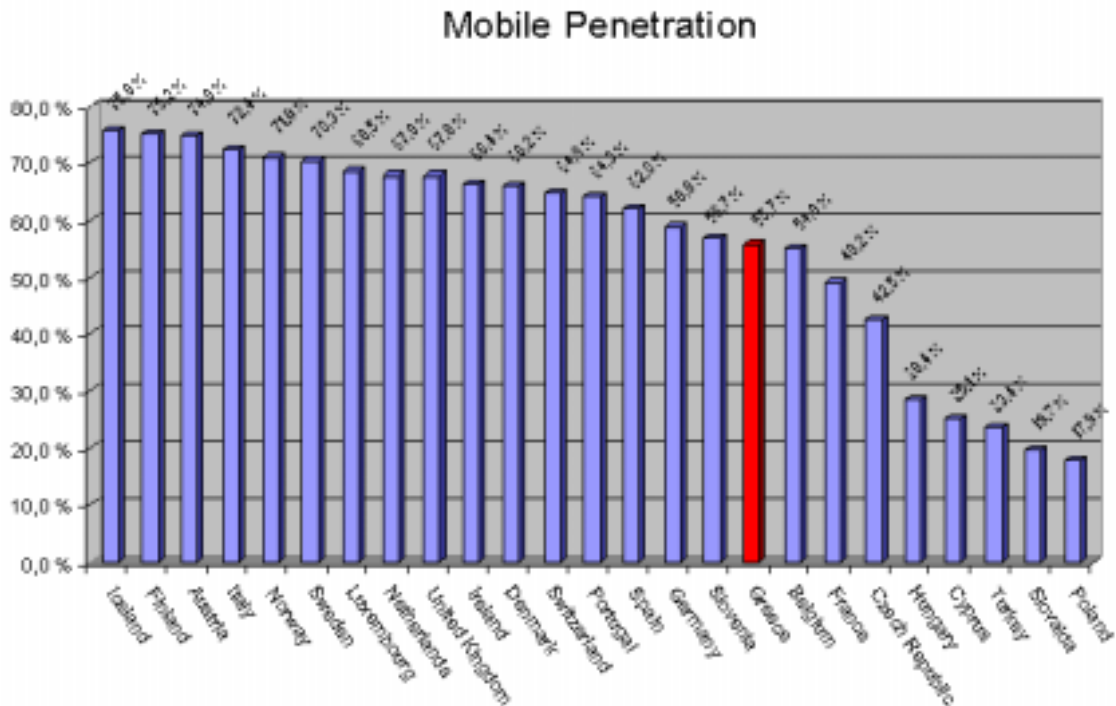
² The figure is obtained from STET Hellas 2000 first half year results (until June 2000)



Table 6 - Growth in Mobile Turn Over in Greece

2.2.7 Market Penetration

Figure 1 depicts the mobile penetration in different European countries by year-end 2000.



*Source EMC in UK

Figure 1 - Mobile Penetration in Europe by year-end 2000

Greece has about 10.5 million inhabitants. By year-end 2000 the total number of mobile subscribers was about 5.9 million, whereas the mobile penetration was 55.7%.

The average mobile penetration ratio in Greece is close to the European average mobile penetration ratio and below the European Union average mobile penetration ratio (see Figure 3 below).

2.2.8 Growth of mobile penetration in Greece

Figure 2 shows the previous, current and forecasted penetration growth ratio in Greece. The figures from 2001 onwards are based on Merrill Lynch forecasts. As it can be seen from the Table below, the penetration of mobile telecommunications in Greece is expected to reach at a level close to 80% by year 2003.

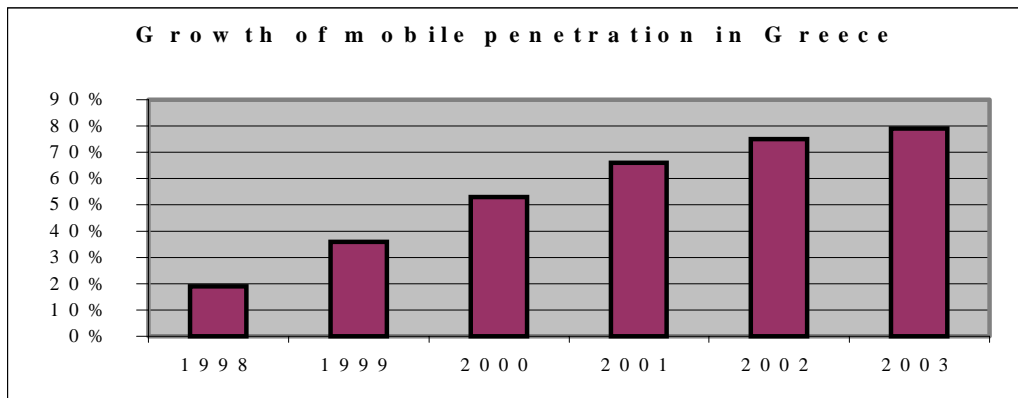


Figure 2 – Penetration Growth in Greece

2.2.9 Mobile Penetration in EU from 1999 to 2000

Figure 3 shows the penetration growth in EU from August 1999 until August 2000. It should be noted that the increase of penetration in Greece was 111% within this period of time. This is the highest increase in penetration compared to all the other EU countries.

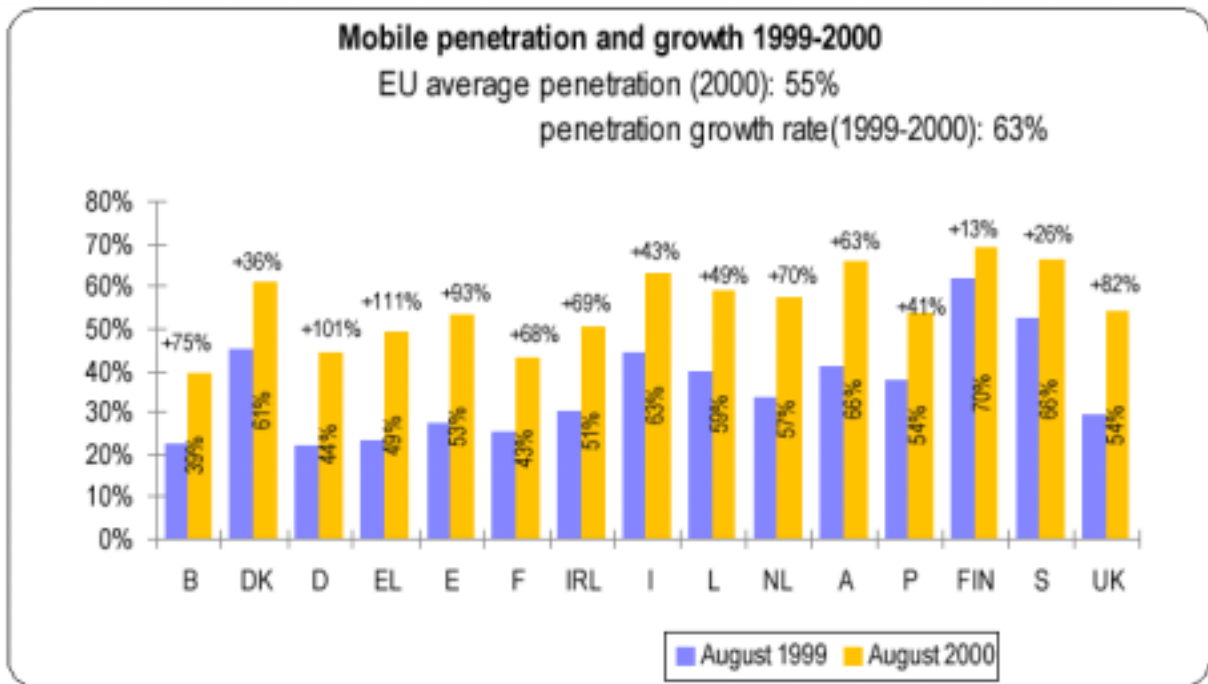


Figure 3 – Mobile Penetration in EU from 1999 - 2000

*Source 6th EU Report

2.2.10 Market Trends

The Greek mobile telecommunications market continues to boom whilst competition is strengthening.

Today the characteristics of the mobile market are:

- Rapid penetration growth



- High churn
- Relatively low usage

Expectations for the Greek mobile telecommunications market in the future is:

- Focus shifting from handsets subsidy to smart pricing
- Increasing market sophistication
- Increasing access to information in an efficient manner

2.2.11 Expected Market Development with 3G Technology

By first quarter 2001 the penetration rate for cellular services in Greece exceeds 56% and the market is still increasing due to high demand for mobile services. These services have become an important tool both for business entities and the mass market. Implementation of 3G services in Greece will form the basis for new mobile services that will be to the benefit of the whole Greek society.

For Greece it is important to offer high quality 3G services as soon as possible, especially in view of the forthcoming 2004 Olympic Games in Athens. The operators to be awarded licenses for 3G have to take this important event into consideration when planning their network roll-out. It is of paramount importance that Greece can offer advanced 3G services to all parties involved in the planning and execution of the Olympic games. The marketing and revenue implications of the Olympic games should be a driving force when competing for the 3G licenses in Greece. This event could give the new operators of 3G in Greece a “flying start” in terms of customers and revenue.

The high international roaming revenue for 2G and 3G telecommunications network operators should also be noticed. The number of tourists per year in Greece is currently at a level of about 10 million. Additional roaming traffic will be generated in the planning phase and during the Olympic games in Athens in 2004.

2.3 Market and Competitive Environment

3G mobile telecommunications market relationship is likely to be complex, involving the addition of different types of service providers to the mobile network operator’s distribution schemes, e.g. resellers, content providers and mobile virtual network operators. The success of these services providers in developing new innovative services and applications will depend upon the terms and conditions for accessing the mobile telecommunications networks.

It is clear that new entrants without existing mobile networks will face a number of important challenges. Existing mobile operators who will be awarded a 3G license will be able to use their networks to facilitate the development of the 3G networks. This gives them a major competitive edge over new entrants who will only be able to offer services in areas covered by their own developing network. This must be seen in combination with possible network access measures and national roaming, addressed in section 4.

Thus, to create a level playing field for the new entrants, the policy of EETT is to allow access to existing networks on reasonable terms and conditions and make 2G spectrum available for new entrants in the GSM 900/DCS 1800 bands.



2.4 Available 2G Spectrum as an Asset for New Entrants

For a new 3G entrant in the Greek market a rapid network deployment and launch of services will be a key success factor for gaining market shares and generating revenue. Usage of the available 2G spectrums may in this context represent a significant pre-requisite, due to the following factors:

- Using the GSM 900 band, the number of base stations required to cover a certain area, will be about a third of the number required when using UMTS. Thus coverage can be achieved by a rapid roll-out, and coverage of areas with lower population density can be made cost-effectively.
- GSM/GPRS infrastructure and terminals are available as of today, while a shortage of UMTS infrastructure is expected, and currently no terminals are commercially available. Especially the terminal side is critical. The experience from GPRS has shown major delays in availability of terminals in commercial volumes.
- With a GSM/GPRS network, an extensive service portfolio can be rapidly developed and launched both for voice and data services. GPRS data rates currently yield about 25 kbit/s effective throughput, but this is expected to increase to 56 kbit/s in 2001 and 112 kbit/s in year 2002.
- The core network and service platforms will be similar for UMTS and GSM/GPRS. Thus the core infrastructure could be shared between the 2G and 3G networks, and the services introduced in the GSM/GPRS network can be transferred to UMTS and further developed when UMTS is launched.
- The base station sites acquired for GSM deployment can be re-used in the UMTS roll-out. There are also synergy effects in sharing of equipment such as antennas, power, climate control, etc.
- The GSM/GPRS network will also provide additional voice and data capacity to supplement the UMTS network if the capacity provided by the allotted UMTS spectrum is not sufficient, e.g. in hotspot areas.

2.5 Potential 3G Services

Driven by the Internet, the amount of information accessible through networks is growing exponentially. Services such as entertainment, marketing, advertising and distance learning are nowadays a common practice on fixed Internet. Additionally, data from traffic monitoring, earth resource monitoring, energy management, healthcare monitoring and even usage analysis of the networks themselves are other forms of information being sent across networks. All these forms of information will increasingly be transferred over wireless links.

Enhanced features of 2G mobile networks such as SMS, GPRS and WAP enable operators to offer new services aimed at the mass market and will assist operators in gaining experience prior to the launch of 3G mobile networks. However, the rollout of WAP and GPRS services has only just begun.

There is little doubt that the wireless communications industry will drive the Internet into new markets with the introduction of 3G mobile networks.

3G services will be implemented over packet-based networks and will show different traffic patterns to that of voice. These services could be priced according to network usage or data volume rather than by the number of minutes a subscriber uses the network. The future



potential success of 3G services will very much depend on the implementation of the right pricing of these services in terms of both level and structure.

3G mobile telecommunication networks will enable new and enhanced applications and services compared to existing 2G services. Moreover, 3G mobile telecommunications networks will accommodate all existing 2G services, i.e., voice, SMS, WAP and basic information (push) services.

The main new applications expected to be provided by 3G mobile telecommunications networks include:

- Multimedia
- Mobile commerce
- Unified messaging
- Voice over IP
- Interactive broadcasting
- Positioning
- Location-based services
- Education & entertainment and information & entertainment
- Mobile teleworking (Office extension)
- Health diagnostics and care

2.6 Consultation

EETT invites interested parties to express their views and comments on the following aspects:

- Q1. What measures and/or incentives should be taken to ensure fair competition between new entrants and existing mobile operators? For example, should a license with more spectrum and/or different roll-out requirements be reserved for a new entrant? Are there any other methods with which EETT could try to create a level playing field? (i.e., bidding credits?)
- Q2. What is your opinion for Mobile Virtual Network Operators (MVNOs)?

3 Technical Issues

3.1 Standards and Technology

The majority of mobile phones currently in use are 2G handsets operating according to the international Global System for Mobile communications GSM standard, which was introduced in Greece in 1993.

3G mobile telecommunications networks represent the next step in the evolution of mobile telecommunications networks. The principal difference between 3G mobile telecommunications networks and current 2G networks is the emphasis placed on data services.

In Europe, both the European Commission, CEPT and ETSI have supported the introduction of 3G mobile telecommunications networks. The introduction of 3G mobile telecommunications networks in the member states is addressed in EU Decision 128/1999/EC.



The spectrum for 3G mobile telecommunications network service in Europe is identified in CEPT Decision ERC/DEC(97)07. A more recent CEPT Decision, ERC/DEC(99)25, defines channel spacing, minimum carrier separations and the apportionment of spectrum between licensed and unlicensed UMTS services.

According to ERC/DEC/(99)25, the frequency band 2010-2020 MHz is identified for the so-called self-provided applications operated in self-coordinated mode. The spectrum will be a shared license, exempt spectrum outside the spectrum allocated to public operators. Concrete examples of usage may be:

- private cordless access, where the unlicensed band is used for cordless access from private residences to a public operators UMTS core network. This will be very similar to the current usage of DECT private cordless telephones.
- business/office systems where a corporation operates its own UMTS network, covering an office building or a limited geographical area. The corporate network may be interconnected to other public or private networks.

The ITU has adopted the following standards under the IMT-2000 banner:

- UMTS Terrestrial Radio Access (UTRA)
- Code Division Multiple Access 2000 (CDMA 2000)
- Universal Wireless Communications (UWC-136)
- Digital Enhanced Cordless Telecommunications (DECT)

UMTS was chosen by the European Union as the preferred technology to be used for a harmonised introduction of 3G services in the member countries, and at least one license in each member country must be based on UMTS Terrestrial Radio Access (UTRA) technology, for intra-European roaming purposes. Due to the WTO (World Trade Organisation) agreement the assignment must beyond this requirement be open for any 3G standard incorporated in IMT-2000.

3.2 Radio Frequency Spectrum

3.2.1 Current Available Spectrum

There are currently three operators that have been awarded 2G licenses in Greece. Panafon and TeleStet have both been entitled a GSM 900 license with the bandwidth of 2 x 10MHz. Cosmote has a DCS 1800 license with a bandwidth 2 x 25MHz.

Table shows the spectrum allocated to each of the existing 2G Mobile operators in Greece:



Operator	Bandwidth	Type	Spectrum
COSMOTE	2X25 MHz	DCS 1800	1760 – 1785 MHz 1855 – 1880 MHz
PANAFON	2X10 MHz	GSM 900	905 - 915 MHz 950 - 960 MHz
TELESTET	2X10 MHz	GSM 900	890 - 900 MHz 935 - 945 MHz

Table 7. Spectrum allocation to existing 2G operators in Greece

Table 8 shows the spectrum available in Greece for additional 2G licenses:

Type	Bandwidth	Spectrum
EGSM 900	2 x 5MHz	885 - 890MHz 930 - 935MHz
GSM 900	2 x 5MHz	900 - 905MHz 945 - 950 MHz
DCS 1800	2 x 50MHz	1710 - 1760 MHz 1805 - 1855 MHz

Table 8 - Remaining 2G Radio Frequency Spectrum in Greece

The spectrum available in Greece for 3G terrestrial mobile licenses based on the IMT 2000 standards is shown in **Table** below.

Type	Bandwidth	Spectrum
IMT-2000	155MHz	1900 - 1980MHz 2010 - 2025MHz 2110 - 2170MHz

Table 9 - Available 3G Radio Frequency Spectrum

A total of 155 MHz is available. Most of the spectrum (2 x 60 MHz) is paired, i.e. there are matched sub-bands for network to mobile and mobile to network transmission, as is the case of GSM. This type of operation is known as “Frequency Division Duplex” (FDD).

The remaining 35 MHz is unpaired and individual channels are likely to be used for both network-to-mobile and mobile-to-network transmission, a technique known as time division duplex (TDD). TDD is currently used by digital cordless technologies.

According to CEPT/ERC/DEC (99)/25 the frequency band 2010 – 2020 MHz (unpaired spectrum) is identified for self provided applications operating in self coordinating mode.



3.2.2 Future Expansion Spectrum

As provided services develop, more spectrum will be required to deliver the capacity and data rates demanded by users. In recognition of this, the recently concluded World Radio Conference agreed to make available on a global basis, three further frequency bands for future expansion of terrestrial IMT-2000 services. The three bands are:

- 806 - 960 MHz
- 1710 - 1880 MHz
- 2500 - 2690 MHz

3.2.3 International Co-ordination

Co-ordination of 3G networks will be required along the Greece/Albania, Greece/FYROM - Former Yugoslavian Republic of Macedonia, Greece/Bulgaria and Greece/Turkey borders. It will not be possible as in GSM, to simply apply a “preferred channel” approach, since the channel widths are much wider and their number much lower.

Recommendations for border co-ordination of UMTS systems are laid down by CEPT/ERC in ERC recommendation (01) 01 titled: “Border Coordination of UMTS/IMT-2000 systems”. Recommendations are given on how cross-border interference can be avoided by the use of code coordination and frequency coordination. The coordination in border areas shall be based on bilateral or multilateral agreements between administrations.

3.3 Evolution from 2G to 3G

3.3.1 Introduction

It is expected that 3G networks will resemble those of 2G and the subscribers’ demand for advanced mobile services will most certainly require access to both 2nd and 3rd generation networks for quite a while. As it is normal, 3rd generation telecommunications networks are evolving from the GSM standard, thus facilitating already established GSM operators to move towards offering 3G services by using either 2nd or 3rd generation mobile radio interfaces. Naturally, the new 3G handsets will have to be dual-band, enabling both 2G and 3G network accessing.

3.3.2 Enhanced 2G Services

As new advanced 3G services are introduced, there is a parallel push for substantial enhancements to already established 2G networks. Bit rates in excess of 56 kbit/s TDMA combined time slots are enabled due to High Speed Circuit Switched Data (HSCSD) and General Packet Radio Service (GPRS), despite the eventual trade-off in base station capacity. Enhanced Data Rates in GSM Environment (EDGE), yet another enhancement, is perceived that in the next few years it will become the protocol which will approach most the 3G mobile network functionality, promising bit rates of up to 384 kbit/s in short transmission distances. All the aforementioned enhancements could be summarised as 2.5G services.

EDGE (Enhanced Data for GSM Evolution) which is currently being standardised within the European Telecommunications Standards Institute (ETSI), represents the final evolution of data communications within the GSM standard. The next step in the evolution of GSM after



GPRS is EDGE. EDGE is an enhanced technology bringing the GPRS technology further into full 3G functionality. EDGE uses a new modulation scheme to enable data throughput speeds of up to 384 kbit/s using existing GSM infrastructure.

As 384kbit/s is the data speed being offered in the first phase of third generation deployment, EDGE could offer an alternative route for GSM operators who will not have third generation licences.

3.4 Number Portability

For the time being, there is no regulated mobile number portability and this absence thereof represents an obstacle for further competition development. Many subscribers value their number highly and are not willing to change their service provider, without retaining the numbers. This tends to retain customers and prevent churn. Mobile number portability offers the opportunity to subscribers who value their number highly to change networks without changing numbers.

Change of service provider could result in cost savings to the subscriber and also potential cost savings to those who call the subscriber, and implementation of mobile number portability could accordingly also provide considerable consumer benefit.

The European Commission's most recent draft proposal for a Directive covering user's rights relating to telecommunications networks and services, imposes a number of obligations regarding number portability to mobile operators.

Given the potential benefits of introducing number portability the likely increased competition and consequential economic benefits for the subscriber, and the expected European legislation requirement, EETT is considering the possibility, as part of the minimum requirement for the licence competition, to require that mobile number portability is implemented.

3.5 Consultation

EETT invites interested parties to view and comment on the following aspects:

- Q3. Do you have views and comments regarding the standards and technology of the 3G services?
- Q4. Do you have a view on how cross-border co-ordination between 3G mobile telecommunications networks might be approached, taking into account the technologies that might be involved?
- Q5. A typical EDGE channel may require more spectrum than the conventional GSM channel of 200 KHz. What are the implications in the context of required spectrum for the implementation of EDGE?
- Q6. What are your views in regard with imposing a requirement for mobile number portability on 3G networks and between earlier 2G networks and 3G networks? More specifically do you believe that mobile number portability should be a minimum requirement for entering the license competition?
- Q7. How should EETT ensure that at least one license follows the UTRA air interface standards?



4 Regulatory Issues

4.1 Governing Law

The regulatory framework of Greek telecommunications is set from Act 2867/2000 concerning telecommunications that had been enacted in December 2000. The Act has been adopted in view of full liberalization of the Greek market, as from 31/12/2000. The basic feature of the new act is that establishes EETT as the independent regulatory authority and gives it extensive and exclusive powers in all fields of telecommunication regulation, including licensing, frequency allotment and assignment, numbering, universal service, interconnection etc. EETT is also the authority responsible for the application of Act 703/77, which concerns competition in the telecommunications market. Act 703/77 moves along the lines of articles 81 and 82 of the EEC treaty and the relevant EEC regulation concerning concentrations. All EU Directives have been implemented in Greek law regarding both ONP and liberalization of the market.

4.2 National Roaming

When building a mobile 2G or 3G mobile telecommunications network, e.g. DCS 1800 or UMTS, it may not be commercially feasible to build the network with the same coverage as in e.g. GSM 900. By use of national roaming the mobile network operator is capable of realising quickly a much wider coverage than that he would normally achieve, if he were building his own network infrastructure. National roaming implies that a mobile operator with his own network gets the opportunity to make use of the network of another mobile operator to serve his own customers, typically in areas where the former's own network has limited or no coverage.

National roaming could also ensure that mobile networks are not deployed to a larger extent than what is socio-economically desirable, and contribute to a more environmentally sound deployment. National roaming could also contribute to more efficient competition.

The new Greek telecommunications Act 2867/2000 provides that EETT must impose national roaming on mobile network operators, until 31.12.2001.

4.3 Number of Licenses

This will be determined in accordance with the provision of Act 2867/2000, Presidential Degree 157/99 by which Directive 97/13/EC is implemented and EETT Regulation 207/2 on Individual Licences. This regulatory framework is in full compliance with Directive 97/13/EC.

The main objectives are to license the usage of the available 2G and 3G radio spectrum in a transparent and efficient manner, in a way that:

- secures long-term benefit for consumers;
- promotes competition in the provision of new 2G and 3G services; and
- ensures that the available spectrum is used with optimum efficiency.

The available spectrum in Greece is 155MHz, i.e. 2 x 60MHz paired and 35MHz unpaired, for 3G usage. For technical reasons only spectrum packages consisting of multiples of 5MHz carriers can be formulated. At least two 5MHz-unpaired carriers will be reserved for license exempt self co-ordinated usage as in other EU countries, in accordance with CEPT/ERC/DEC



(99)25. Given that at least two paired carriers would be required technically to provide an appropriate 3G service, the maximum feasible number of licenses is six.

According to the UMTS Forum Report 5 entitled “Minimum spectrum demand per public terrestrial UMTS operator in the initial phase”, the recommended minimum spectrum per operator is 2 x 15 MHz paired spectrum plus 5 MHz unpaired spectrum. This is based on the following assumptions:

- Expected market growth and traffic forecast in EU member states until the year 2005
- 90% of the total speech and low speed data will be carried over the existing 2G networks
- 60% of the indoor traffic will be carried over licence-exempt networks

According to the report, the following UMTS service capabilities are associated with the different frequency allotments:

Scenario	Paired Frequencies per Operator	Unpaired Frequencies per Operator	UMTS Service Capabilities
1	2 x 5 MHz	-	Limited functionality and capacity, not practicable. The scenarios are not recommended
2	2 x 5 MHz	5 MHz	
3	2 x 10 MHz	-	
4	2 x 10 MHz	5 MHz	Technically sufficient and provides enough capacity, but may not provide a flexible deployment of cell structures. Problems with delivering high data rate services in some areas.
5	2 x 15 MHz	-	
6	2 x 15 MHz	5 MHz	Full required functionality and sufficient capacity to carry the projected traffic in Europe.
7	2 x 20 MHz	-	
8	2 x 20 MHz	5 MHz	

Table 10 - UMTS Service Capabilities Associated with Different Frequency Allotments

It should be noted that the calculations made by the UMTS Forum are based on average expected market growth and traffic forecast in the EU 15 as of 1998, and that the situation can vary within the member countries.

For licensees already operating 2G GSM 900/1800 networks the reduced capacity of a smaller spectrum package could to some extent be compensated by the 2.5G extension of the GSM standard, such as General Packet Radio Service (GPRS) and Enhanced Data rates in a GSM environment (EDGE) permitting some of the potential 3G traffic to be carried on the GSM networks.

The available 2G spectrum in Greece is 2X5 MHz EGSM 900, 2X5 MHz GSM 900 and 2X50 MHz DCS 1800.



According to the international practice the number of Individual Licences for 2G mobile telecommunications networks is limited (≤ 5) as limited as is also the total amount of spectrum allotted to each provider ($\leq 2 \times 30$ MHz). It must also be noted that there is a clear trend the same provider to be active in both spectrum bands GSM 900 and DCS 1800. This is supported by the fact that in some European Countries mixed GSM900/DCS1800 licences are been awarded.

4.4 Consultation

EETT invites interested parties to view and comment on the following issues:

- Q8. How many 3G licences should be awarded and what is the required amount of spectrum per licence? Should EETT define upper and lower limits concerning the total 3G spectrum that can be allotted to each operator (existing and new entrants)? If so, what should these limits be? Should the same limitations apply to existing operators and new entrants? Should EETT allow the participants in the tender some flexibility in deciding the appropriate 3G packages?
- Q9. Does a new entrant in the Greek mobile market who has been allotted 3G spectrum need 2G spectrum? If yes, what is the required amount of 2G spectrum? Should a 2G license be offered together with a 3G license for a new entrant?
- Q10. Should EETT allow a new entrant to the 2G market only? If yes, what should be in this case the required amount of 2G spectrum?
- Q11. (How) Should EETT ensure that all operators can be active in both GSM bands if they so wish?
- Q12. Should EETT define upper and lower limits concerning the total 2G spectrum that can be allotted to each operator (existing and new comers)? If so, what should these limits be? Should the same limitations apply to existing operators and new entrants? Should EETT allow the participants in the tender some part in deciding the appropriate 2G packages ?
- Q13. As mobile operators in Greece will be required to sign national roaming agreements for Standard GSM, GPRS and 3G mobile telecommunications network, e.g. UMTS with new entrants what should be the general terms and conditions for such agreements?



5 Selection Process

5.1 Introduction

Auctions have become an increasingly popular means of allocating spectrum and licensing around the world. One of the reasons for the increased popularity of using auction for assignment of mobile telecommunications licenses is the inherent fairness and transparency of this method. An auction has only major advantages where there are more potential licensees than can be accommodated in the available spectrum.

For a successful auction process it is critical that the policy objectives with respect to the development of the telecommunications industry, determine the nature, timing and parameters of the auctions and that the auction is not the exclusive goal of raising revenue for the treasury. In addition a form of pre-qualification is required to avoid that financially risky bidders distort the action process.

It is also important to note that the alternative selection procedure, where licensees are chosen by comparative selection (also known as "beauty contest"), is by no means straightforward and likely to become increasingly problematic. In the light of the liberalisation of the telecommunications market and the continued globalisation of the industry, it is likely that there will be large numbers of potential licensees competing for the right to provide new services such as 3G mobile telecommunications network.

To decide between such competing bidders, on the basis of administrative selection criteria, and to be able to demonstrate the fairness of such a decision, is likely to become extremely difficult. Beauty contests are time consuming and resource intensive from the perspective of both the applicants and the authority.

5.2 Auction

The main advantages of the auction mechanism are:

- By requiring firms to use their own resources to compete for valuable spectrum, auctions encourage firms which value the spectrum the most to use it productively and in innovative ways.
- Auctions provide valuable information about the opportunity cost of spectrum because they reflect the value that the next most efficient firm places on the spectrum license. This information allows both the private marketplace and policy makers to manage spectrum more effectively.
- The auction model avoids the delay associated with other models.
- Transparency - auctions avoid the potential for regulators making decisions that are biased towards or against individual industry players. They provide a basis by which any potential licensee can determine the basis for the licensing decision and the outcomes are definitive.
- Auctions help ensure that spectrum ends up in the hands of those who value it most. This encourages services and technologies to be made available more quickly because the spectrum has been assigned at a cost that is based on the expected return for its use.



5.3 Auction Design

- A good design is crucial in determining the success of the auction. Decisions on the optimum auction mechanism will need to take into account the likely number of bidders and the number of spectrum packages available.

Among others there are the following auction methods:

- simultaneous ascending auction;
- sealed bid auction; or
- auction with market determination of licenses

5.3.1 Simultaneous Ascending Auction

By using this method, bidders submit simultaneous bids in a sequence of rounds. In each round, a bidder may either place a single bid on any of the licenses at an amount higher than the current price, or withdraw from the auction or waive his bid up to a permitted number of times. However, if that bidder made the highest bid on a license in the previous round, he may not bid at all, and hold that license until he is outbid. If the bidder is outbid, he can bid on the same or any other license, waive or withdraw. If the bidder is not outbid on a particular license at the time the auction ends, he is allocated that license.

5.3.2 Sealed Bid Auction

With sealed bid auctions, bidders enclose their bids for a license in sealed envelopes which are opened simultaneously. The licenses are awarded to the highest bidders. There are three main variants of this method:

- First-price auction - in which each winning bidder pays the price he bids in the auction.
- 'Vickrey' auction - where each successful bidder pays the price of the highest losing bid (providing a similar result to an ascending auction).
- 'Lowest winner' auction - where each successful bidder pays the price of the lowest winning bid.

5.3.3 Auction Methodology with Market Determination of Licenses

It is also possible to use an auction methodology where the market participants decide the number of licenses to be offered.

One such option for achieving this is a combinatorial auction. This option allows the number and size of licenses - within bounds - to be determined through an ascending auction process. The bidders bid for a number of spectrum packages (e.g. of 5MHz) at an ascending price per package and the ultimate allocation is determined when no package is disputed. This approach was used in both the German and Austrian auctions.

5.4 Beauty Contest

A number of authorities believe that a 'beauty contest' rather than an auction is the best way forward for developing the telecommunications markets and delivering a better and lower priced service to the customer because "efficient use of spectrum" can be used by the authority as a key determining parameter in deciding who gets the license.



By use of beauty contest it is also possible to specify service level requirements, e.g. coverage, roll-out speed, quality of service and customer care.

5.5 Pre-qualification Criteria

Pre-qualification should in general serve as a filter to ensure that appropriate companies, which comply with specified threshold capabilities, tender or bid for the licenses.

The pre-qualification rules are setting out the basis on which companies can take part in the tender or bid for license. These rules are likely to include:

- Financial capability;
- Technical capability;
- Telecommunications market capability; and
- Types of legal entities and ownership rules that should be permitted

5.6 Royalties and deferred payment

Payment for the licences under either a beauty contest or an auction can be made using the following methods:

1. Payment of a lump-sum licence fee; bidders are required to pay a total lump-sum fee for the licence
2. Payment of the licence fee as a royalty – the licence fee is set as a percentage of future turnover or another appropriate measure, such as number of interconnections
3. A combination of the above, with the licence fee being paid as a royalty on future revenues (or another measure) in addition to a lump sum. This was the method employed for example in the award of the Portuguese UMTS licences.

Under method 1 (and possibly 3), it is possible for the payment of the lump sum fee to be deferred (spread over a period of years), with the application of an appropriate level of interest.

The objective of introducing a royalty element in the payment mechanism is to share risk between the operators and the government. Unlike full up-front payment (method 1), a royalty mechanism introduces an economic distortion, as the price paid by consumers of UMTS services differs from the (marginal) cost of offering the service, by the amount of the royalty. Furthermore, if a high proportion of the overall payment, it can provide incentives for successful bidders to re-negotiate the royalty element of the payment at a future date.

The objective of a deferred payment is to spread the payments, with the aim of providing a closer synchronisation of revenues with payments for licence holders. The advantage of deferred payment terms compared to royalties is that they are not distortionary – although there is still a possibility of renegotiation.

The Government is considering the introduction of a royalty element, but in view of their potentially significant distortionary impact it is inclined to consider method 3 only. The Government is also considering the introduction of deferred payment terms, at an appropriate level of interest.



5.7 Consultation

Views and comments are requested on the following issues:

- Q14. What in your views what are the merits of the different selection procedures for allotment of 2G and 3G spectrum, respectively? What is your view about the sequence in which 2G and 3G spectrum should be allotted?
- Q15. In case the selection procedure is an auction, what are your views on the different auction types?
- Q16. What are the merits of following the same or a different procedure between existing operators and newcomers?
- Q17. What financial capability requirements should be included as pre-qualification criteria for a beauty contest and for an auction process?
- Q18. What technical capability requirements should be included as pre-qualification criteria for a beauty contest and for an auction process?
- Q19. Should a royalty element be introduced in the payment mechanism? If so, what should the royalty be applied to? Over what period of time? How can potential bidders provide guarantees to limit the possibility of re-negotiation at a future date?
- Q20. Should deferred payment terms be introduced as an option? If introduced, what should be the length of the allowed period for payments?



6 Licensing Conditions and Principles

6.1 Licence Conditions

PD 157/99 and EETT Regulation 207/2 describe the terms that can be included in the licences and the conditions under which such terms are adopted.

6.1.1 Duration

The new Greek telecommunications law, reference 2867/2000, defines that licenses of the 2G and 3G mobile telecommunications network types shall have a duration of 15 to 20 years.

6.1.2 Assignment

Under the Greek law, licenses cannot be assigned, and change of control of the license holder is not allowed without EETT's approval.

6.1.3 Financial Strength

A general requirement in some countries is for the 2G and 3G mobile telecommunications network license holders to maintain a certain level of equity and reserves of their assets. These requirements are intended to protect consumers by ensuring that license holders remain financially robust throughout the duration of the license. In the process of assigning 2G and 3G telecommunications network licenses EETT will consider the financial strength of the applicants.

6.1.4 General Roll-out Requirements

EETT expects roll-out conditions to apply to the licences. EETT believes that these are necessary to ensure that licensees make efficient usage of spectrum. However, the type and extent of these conditions may not necessarily be the same as those in 2G licenses - issued following a beauty contest. In addition, the degree of uncertainty associated with the technical characteristics and availability of base station and handset equipment might suggest a different approach.

Different roll-out requirements might be attached to different licenses, or could potentially be associated with a type of applicant - i.e. a new entrant.

6.1.5 Quality of 3G Network Services

EETT recognises that the voice telephony traffic percentage of all 3G services is likely to fall compared with its traffic percentage in existing 2G mobile telecommunications networks. It also recognises that market pressure is likely to ensure that the quality of service available through 3G technology does not deteriorate. In that context, EETT would welcome views on whether it is appropriate to retain quality of service measures used in 2G licenses, or whether there are alternative measures.

6.1.6 Sanctions, Revocation and Penalties

Act 2867/2000 and Regulation 207/2 of EETT with regard to Individual Licences, set out the framework for the above.



6.2 Site Sharing

3G systems utilize higher frequencies and provide higher data rates. This fact implies that an increased number of new base stations is likely to be needed through time in order to equal the coverage exhibited by 2G networks. A certain number of base stations can be installed on roofs of buildings. Nevertheless, there will still be a need for additional masts in the countryside as well as in residential areas. EETT encourages the re-use of existing sites, whether those are used by existing 2G operators, or other radio site owners.

There are several options on how to assist the re-use of sites. One option may be for operators and site owners to develop a database of radio sites through which interested network designers/engineers will be able to identify existing masts and utilise them accordingly. Yet another option is for operators to develop a code of practice that obliges them to study all available sharing alternatives prior to selecting a location for erecting a new mast.

Site sharing is normally the subject of agreement between interested parties/operators. In case, however, the interested parties are unable to reach to an agreement, EETT can exercise its right to determine the terms and conditions of such an agreement.

EETT expects to see site sharing between operators in Greece. Preferably, the parties involved should negotiate and mutually agree on commercial terms which sites could be re-used, without however excluding the possibility that this issue could be regulated in the near future.

6.3 Environmental issues

6.3.1 Introduction

Implementing new 2G and 3G mobile telecommunications networks will be dependent of the number of new licences and will also require a substantial new number of base stations, including antennas and masts. This will affect the environment and the construction of new base stations has to comply with the construction legislations and the environmental law and regulation in Greece.

To avoid unnecessary impact on the environment, a certain co-ordination between the existing and new mobile network operators are important in both planning and deployment of the new 2G and 3 G networks in Greece.

6.3.2 Radiation

More and more attention is focused on the radiation issue in order to protect the people from unnecessary radiation from mobile telecommunications. The new operators of 3G services have to comply with the legislations and the radiation regulation in Greece.

6.4 Consultation

EETT invites interested parties to express their views on the following issues:

- Q21. What is an appropriate duration for 3G licenses?
- Q22. What roll-out requirements should be specified for 2G and 3G mobile services respectively, in terms of launch of service and overall population or geographical coverage?



- Q23. How should EETT specify minimum service and quality requirements in a 3G context?
- Q24. How might site sharing with existing network operators, or between new operators, be promoted best to minimise the need for new masts?
- Q25. How should mandatory site sharing as provided from current regulation be implemented in practise between operators? Should such regulation for mandatory site sharing be extended?



Appendix 1 – Summary of Consultation Paper Questions

- Q1. What measures and/or incentives should be taken to ensure fair competition between new entrants and existing mobile operators? For example should a license with more spectrum and/or different roll-out requirements be reserved for a new entrant? Are there any other methods with which EETT could try to create a level playing field? (i.e., bidding credits?)
- Q2. What is your opinion for Mobile Virtual Network Operators (MVNOs)?
- Q3. Do you have views and comments regarding the standards and technology of the 3G services?
- Q4. Do you have a view on how cross-border co-ordination between 3G mobile telecommunications networks might be approached, taking into account the technologies that might be involved?
- Q5. A typical EDGE channel may require more spectrum than the conventional GSM channel of 200 KHz. What are the implications in the context of required spectrum for the implementation of EDGE?
- Q6. What are your views in regard with imposing a requirement for mobile number portability on 3G networks and between earlier 2G networks and 3G networks? More specifically do you believe that mobile number portability should be a minimum requirement for entering the license competition?
- Q7. How should EETT ensure that at least one license follows the UTRA air interface standards?
- Q8. How many 3G licences should be awarded and what is the required amount of spectrum per licence? Should EETT define upper and lower limits concerning the total 3G spectrum that can be allotted to each operator (existing and new entrants)? If so, what should these limits be? Should the same limitations apply to existing operators and new entrants? Should EETT allow the participants in the tender some flexibility in deciding the appropriate 3G packages?
- Q9. Does a new entrant in the Greek mobile market who has been allotted 3G spectrum need 2G spectrum? If yes, what is the required amount of 2G spectrum? Should a 2G license be offered together with a 3G license for a new entrant?
- Q10. Should EETT allow a new entrant to the 2G market only? If yes, what should be in this case the required amount of 2G spectrum?
- Q11. (How) Should EETT ensure that all operators can be active in both GSM bands if they so wish?
- Q12. Should EETT define upper and lower limits concerning the total 2G spectrum that can be allotted to each operator (existing and new comers)? If so, what should these limits be? Should the same limitations apply to existing operators and new entrants? Should EETT allow the participants in the tender some part in deciding the appropriate 2G packages?
- Q13. As mobile operators in Greece will be required to sign national roaming agreements for Standard GSM, GPRS and 3G mobile telecommunications network, e.g. UMTS with new entrants what should be the general terms and conditions for such agreements?



- Q14. What in your views what are the merits of the different selection procedures for allotment of 2G and 3G spectrum, respectively? What is your view about the sequence in which 2G and 3G spectrum should be allotted?
- Q15. In case the selection procedure is an auction, what are your views on the different auction types?
- Q16. What are the merits of following the same or a different procedure between existing operators and newcomers?
- Q17. What financial capability requirements should be included as pre-qualification criteria for a beauty contest and for an auction process?
- Q18. What technical capability requirements should be included as pre-qualification criteria for a beauty contest and for an auction process?
- Q19. Should a royalty element be introduced in the payment mechanism? If so, what should the royalty be applied to? Over what period of time? How can potential bidders provide guarantees to limit the possibility of re-negotiation at a future date?
- Q20. Should deferred payment terms be introduced as an option? If introduced, what should be the length of the allowed period for payments?
- Q21. What is an appropriate duration for 3G licenses?
- Q22. What roll-out requirements should be specified for 2G and 3G mobile services respectively, in terms of launch of service and overall population or geographical coverage?
- Q23. How should EETT specify minimum service and quality requirements in a 3G context?
- Q24. How might site sharing with existing network operators, or between new operators, be promoted best to minimise the need for new masts?
- Q25. How should mandatory site sharing as provided from current regulation be implemented in practise between operators? Should such regulation for mandatory site sharing be extended?