


№ 4

Report from the UMTS Forum

# Considerations of Licensing Conditions for UMTS Network Operations



U M T S  
F o r u m



---

This report is produced by the UMTS Forum, an association of telecommunications operators, manufacturers and regulators active both in Europe and other parts of the world that share the vision of UMTS as a concept which will move mobile communications forward from second-generation systems into the Information Society and deliver voice, data, pictures, graphics and other wideband information direct to people. The conclusions and recommendations in the report are supported by all operators and manufacturers in the UMTS Forum. The National Administrations that are members of the UMTS Forum have actively supported the development of the report. However, the views expressed do not necessarily represent the views of the Administrations. Therefore the Administrations cannot be bound by the detailed recommendations contained in the report.

Copyright © UMTS Forum, 1998. All rights reserved. Reproductions of this publication in part for non-commercial use is allowed if the source is stated. For other use, please contact the UMTS Forum Secretariat, Russell Square House, 10-12 Russell Square, London WC1B 5EE, UK; Telephone +44 171 31 2020.

All possible care has been taken to assure that the information in this report is accurate. However, no warranty of any kind can be given with regard to this material. The UMTS Forum shall not be liable for any errors contained in the report or for incidental consequential damages in connection with the use of the material.

# TABLE OF CONTENTS

<b>0</b>	<b>EXECUTIVE SUMMARY</b>	<b>5</b>
0.1	THE UMTS VISION	5
0.2	PUBLIC SYSTEMS	5
0.3	PRIVATE NETWORKS	7
0.4	SATELLITE SYSTEMS	7
<b>1</b>	<b>INTRODUCTION</b>	<b>9</b>
<b>2</b>	<b>BACKGROUND</b>	<b>11</b>
2.1	THE COMMUNICATIONS VISION	11
2.2	NEW PLAYERS	8
<b>3</b>	<b>UMTS REGULATORY FRAMEWORK</b>	<b>13</b>
<b>4</b>	<b>PUBLIC TERRESTRIAL UMTS</b>	<b>14</b>
4.1	ELIGIBLE CANDIDATES	14
4.2	SPECTRUM ISSUES	16
4.2.1	Number of licences to be awarded	16
4.2.2	Spectrum availability	17
4.2.3	Refarming	18
4.3	LICENSING CONSIDERATIONS	18
4.3.1	Fixed and Mobile networks	18
4.3.2	Roll out and Coverage	19
4.3.3	Roaming	21
4.3.4	Infrastructure sharing/ Facility sharing	23
4.3.5	Experimental phase	25
4.4	REGIONAL LICENCES	25
<b>5</b>	<b>PRIVATE NETWORKS AND OTHER USE OF UNCO-ORDINATED SPECTRUM</b>	<b>27</b>
5.1	PRIVATE NETWORKS	27
5.2	UNCO-ORDINATED BANDS	28
<b>6</b>	<b>SATELLITE ISSUES</b>	<b>29</b>
<b>7</b>	<b>RECOMMENDATIONS</b>	<b>31</b>
7.1	CURRENT LEGAL FRAMEWORK	31
7.2	PUBLIC TERRESTRIAL UMTS	31
7.2.1	Eligible candidates	31
7.2.2	Number of operators	31
7.2.3	Spectrum availability	32
7.2.4	Refarming	32
7.2.5	Converged fixed and mobile networks	32
7.2.6	Roll out and coverage obligations	32

7.2.7	Roaming	33
7.2.8	Facility/ Infrastructure sharing	33
7.2.9	Experimental phase	33
7.2.10	Regional licences	34
7.3	PRIVATE NETWORKS AND OTHER USE OF UNCO-ORDINATED SPECTRUM	34
7.4	SATELLITE ISSUES	35
<b>8</b>	<b>ANNEX I – VOCABULARY OF TERMS</b>	<b>37</b>
<b>9</b>	<b>ANNEX II – GLOSSARY</b>	<b>39</b>

## 0.1 The UMTS vision

The Universal Mobile Telecommunications System (UMTS) aims to offer mobile personalised communications to the mass market regardless of location, network or terminal used. The user will have access to similar services from different networks in a virtual home environment, and a satellite option will provide near global coverage.


This report covers UMTS regulatory licensing conditions that will concern both terrestrial, satellite and public and private operators. It is recognised that the report focuses on Europe (due mainly to the fact that the main contributors have been European manufacturers, operators and regulators who have drawn upon their own experience and knowledge). However it is hoped that Administrations outside Europe will be able to use this report to assist them in the forthcoming licensing of UMTS. The UMTS Forum trusts that future reports will be able to reflect an increasingly global outlook with worldwide membership of the UMTS Forum increasing.

The UMTS Forum believes that UMTS must be market driven within a regulatory environment that takes account of the two overriding principles of encouraging competition at both the infrastructure and service level along with the wider picture of the legitimate interests of consumers, business and society.

Consistent with the above principles of competition and with the existing regulatory framework for telecommunications this report develops recommendations to advise Administrations on aspects of licensing UMTS in the context of limited spectrum availability. Concerning the process of allocating UMTS licences, a general principle is raised that any qualification process prior to the main selection should be open and non-discriminatory to remove only obviously unsuitable candidates and need not directly test technical ability.

## 0.2 Public Systems

Whilst most countries in Europe have now issued licences for second-generation networks and services, the UMTS Forum believes that these licences should not determine the number of licences available for UMTS. Licences should be issued in a fair, open and non-discriminatory manner having regard to the amount of spectrum needed per operator.



---

The spectrum for FPLMTS/IMT-2000 was designated at WRC-92. At EU level, a Decision on the co-ordinated introduction of UMTS is presently being developed<sup>1</sup> obliging all Member States to make the complete band designated for UMTS available. The UMTS Forum supports this fully and encourages Administrations to make this spectrum available as soon as possible in order to ensure effective competition in the UMTS market from the outset.

Experimental licences have also been considered in this report for use before the year 2002 to enable manufacturers to test their equipment and confirmed UMTS operators to test both commercial and technical options. In order to do this the UMTS Forum advocates the need for access to frequencies as soon as possible.

Whilst Directives and decisions have been issued which cover many areas at a very high level, there are still some areas that require further clarification such as the possibilities of refarming second-generation spectrum. The UMTS Forum urges studies to be undertaken to establish the technical and operational feasibility for refarming second-generation spectrum as soon as possible and encourages industry consultation on the possibility of refarming for existing mobile operators. Consultation leading to administrative decisions will assist not only existing operators but also new entrants, since all potential UMTS operators require clarity and certainty to assess the true market place value of UMTS.

Whilst on the whole the UMTS Forum would advocate national licences which cover a significant proportion of the population, based firstly on the success of national second-generation licences, and secondly the spectral efficiency of such licences, in special circumstances regional licences may prove to be more advantageous. This may be in either special geographic circumstances or as a temporary solution where there may not be enough spectrum available at the time of service introduction. However it should be borne in mind, that regional licences can lead to 'cherry-picking' of lucrative areas and inefficient use of spectrum and should therefore be given careful consideration.

Notwithstanding the high level licensing framework, this report pays particular attention to licence conditions. The starting point is that the difference between fixed and mobile networks will be increasingly blurred in the future. The UMTS Forum encourages Administrations to allow this convergence to happen by market forces, rather than defining a specific path for it.

Roll out and coverage obligations are used by Administrations to encourage the efficient use of spectrum by not leaving it unused longer than necessary and to encourage infrastructure competition. However, the UMTS Forum recognises that there is a danger of regulation driving the market if the level, if any, is set too high.

<sup>1</sup> COM (1998) 58 final, Proposal for a European Parliament and Council Decision on the co-ordinated introduction of mobile and wireless communications (UMTS) in the Community.

With regard to roaming, the UMTS Forum believes that international roaming should be encouraged following the success of GSM roaming. The UMTS Forum holds the view that the regulatory framework should permit operators to enter into national roaming agreements on commercial terms, both between third- and second-generation operators (and vice versa) and between third-generation operators only. National roaming, although it may, in some circumstances, be considered to offer benefits to users and lower the barrier to entry for new operators, should generally only be agreed on a commercial basis. The UMTS Forum considers that mandatory roaming should only be introduced after careful consideration by any Administration, as it could be seen to remove the incentive for infrastructure competition and innovation. For that reason it should only be applied in exceptional cases based on a national situation. Facility and infrastructure sharing on a commercial basis should be encouraged provided that competition in infrastructure is not jeopardised. There may also be benefits to be gained from facility sharing from an ecological point of view although it is recognised that there may be property rights problems associated with this. Mandatory infrastructure sharing is as a matter of course undesirable except in specific cases where there is limited access (such as tunnels or bridges).

## 0.3 Private networks

Whilst much consideration has been given both technically and commercially to public operators, consideration should also be given to the need to resolve spectrum and licensing issues for private UMTS networks at an early stage in the licensing process. The UMTS Forum considers that where possible general authorisations (i.e. no requirement for an individual licence) should be used for access. In addition the UMTS Forum urges the relevant bodies to define the standards and to clarify the rules for use of the unpaired bands. Further clarification is also required of the status of public use of private networks.

## 0.4 Satellite Systems

Satellite systems have an important role to play where terrestrial UMTS is either not technically or economically viable. There is a need for a harmonised approach to frequency management of the satellite component on at least a regional basis. A milestone procedure (e.g. CEPT/ERC/Decision (97) 03, Annex 2) to support satellite due diligence and the removal of 'paper' satellites should be extended beyond Europe. The UMTS Forum considers that extension of satellite network and services licensing to the OSS procedure would be desirable.

# 1

## INTRODUCTION

This report is dealing with the Licensing Conditions for UMTS network operations and takes further the work of the first report of the UMTS Forum on "A Regulatory Framework for UMTS", published in June 1997. It does not deal with licensing methods as these are specifically covered in the UMTS Forum Report No. 3 on "The impact of licence cost levels on the UMTS business case", July 1998.

This report is intended to provide guidance to Administrations when establishing the authorisation system for UMTS. As such, it does not develop a new framework for licensing but is to be seen as complementary to relevant EU telecommunications regulation and national laws and aims at clarifying topics specific to UMTS licensing.

Through this report, the UMTS Forum aims to facilitate and encourage the timely and co-ordinated introduction of UMTS in Europe and to contribute to work that aims at avoiding the risk of compromising harmonisation work by early national licensing of UMTS.

Although this Report builds on European experience and is in the first place applicable to the European situation, the UMTS Forum believes that in principle its considerations and recommendations can also be used outside Europe for the introduction of third-generation mobile communication systems (UMTS/IMT-2000). Obviously some details would need to be adapted to the relevant local situation.

The report focuses mainly on the first phase of introduction of UMTS. It is based on the ETSI UMTS standardisation work, in particular the UTRA.

## 2.1 The communications vision


The vision for the future of communications must start with the consumer who will want to communicate at any time, anywhere, with the same ease and facilities as if “at home”. The term “virtual home environment” (VHE) was invented to encompass the full range of the Universal Mobile Telecommunications System (UMTS) concept wherein the network the customer uses is transparent and any distinction between ‘fixed’ and ‘mobile’ will be increasingly blurred if not eliminated. The ‘Information Society’ will be a society on the move and the customer will want a seamless service, not only in terms of networking, roaming and handover but also in relation to customer management activities such as billing.

UMTS will offer mobile personalised communications to the mass market regardless of location, network or terminal used. The user will have access to the same services in both fixed and mobile networks, as well as satellite networks meaning that from a user perspective the fixed and mobile network will converge. The market must drive these developments backed by a fair regulatory environment that encourages competition and innovation, while at the same time taking account of the wider picture of the legitimate interests of consumers, business and society.

The interworking arrangements between UMTS players, network and terminal interfaces are likely to be the main areas where care needs to be taken to ensure that full and effective competition is possible and encouraged for UMTS players at all levels with the objective of delivering bandwidth on demand, seamlessly across all networks. This should as far as possible be achieved through the development of appropriate standards and interfaces and not driven by regulation. The focus should be on ensuring that innovative services are not stifled either by anti-competitive practices or by regulation itself.

## 2.2 New Players

It should be recognised that the UMTS market will not resemble the existing mobile market. It is anticipated that service and content provision will play a far more active role than they have in the GSM market today. Additionally, as already stated above, the markets are likely to be more diverse than in the existing mobile market, incorporating, amongst many others, internet providers, banking and fixed providers. Service and content provision may be provided by operators or independents (see Annex I, Vocabulary of Terms).



---

New, innovative services and content will be a main driver for the development of third-generation mobile services including UMTS. Market demand, combined with the creativity of these providers, will lead to a wide range of new services, many of which we can not imagine today. The service and content layers will be areas for competition in the UMTS market, separate from infrastructure competition.

UMTS can become a very innovative platform to bring multimedia to the consumer. In order to ensure that UMTS can completely develop its potential Internet Protocol (IP), Internet or other value-added service providers must be able to extend their offering to UMTS. Regulation must support VHE or service portability, and not hamper but encourage service providers to develop this market.

The regulatory framework should facilitate competition and innovation, by ensuring the highest possible levels of participation of all existing and potential service and content providers and network operators in the UMTS market. The regulatory regime applicable to service and content provision should be largely unregulated using where necessary "general authorisations" or preferably self-regulatory mechanisms, such as codes of practice. As regards ensuring UMTS access for service and content provision, the existing framework is considered to be generally adequate and appropriate when supported by the right open business and technical interfaces.

The UMTS Forum considers that the current European regulatory framework together with existing competition law provides the right enabling environment to support and foster an open and dynamic UMTS market. This report is intended to complement the relevant telecommunications regulations and national laws implementing the relevant Directives (such as the Licensing Directive<sup>2</sup> and the Interconnection Directive<sup>3</sup>) and the proposed UMTS Decision on the introduction of UMTS<sup>4</sup>

The levels of investment required for UMTS and the relative uncertainty of the UMTS business case means that the development of the UMTS market must be underpinned by the right regulatory framework. Hence, it is essential that the UMTS licensing conditions and policy are stable and clear prior to the commencement of the licensing process so that those players who wish to bid for UMTS licences (whether in an auction or beauty contest or other licensing mechanism) can determine their business cases and bid values.

The UMTS Forum emphasises at this point that it holds the view that the general competition law framework should be used for UMTS in conjunction with the existing European and national telecommunications legislation. It is unnecessary to overlay the ordinary criteria of competition law with any additional rules when sufficient competition has been established in the telecom field.

---

*1. The UMTS Forum recommends that the general competition law framework should be used for UMTS in conjunction with the existing European and national telecommunications legislation. It is unnecessary to overlay the ordinary criteria of competition law with any additional rules when sufficient competition has been established in the telecom field.*

---

The UMTS Forum cautions however that defining the relevant market for competition purposes may prove difficult for some UMTS services. In defining the relevant market for one particular UMTS service, a number of new parameters will have to be taken into account, such as new types of players and services, new structures of the value chain and convergent services.

The following chapters of the report identify key regulatory aspects for licensing UMTS.

2 - Directive 97/13/EC of the European Parliament and of the Council on a Common Framework for General Authorisations and individual Licences in the field of Telecommunications Services

3 - Directive 97/33/EC of the European Parliament and of the Council on Interconnection in telecommunications with regard to ensuring universal service and interoperability through application of the principles of Open Network Provision (ONP)

4 - COM (1998) 58 final. Proposal for a European Parliament and Council Decision on the co-ordinated introduction of mobile and wireless communications (UMTS) in the Community.

## 4.1 Eligible candidates

In principle a process of qualification of candidates prior to a selection by a licensing method for UMTS (auction or "beauty contest" or other procedures to grant licences) is considered to have value. Qualification objectively determines eligible candidates that can proceed to a selection stage.

The prior qualification process, if an administration decides that this is needed, should by initial screening remove only obviously unsuitable candidates. The prior qualification process should not be a measure to limit the number of bidders and must be based on open and non-discriminatory criteria. The Licensing Directive<sup>5</sup> states that potential licensees should not be excluded from the UMTS licensing process, except for reasons of scarce resource e.g. numbering constraints and spectrum availability. Therefore the UMTS Forum sees no reason to exclude certain categories of bidders, such as consortia.

Consortia have successfully competed for second-generation spectrum in several countries and they are considered likely to be formed for UMTS licences. This is particularly so in view of the anticipated role of content providers. In general consortia are expected to be eligible candidates but there are exceptions. Attempted formation of certain consortia could have competition consequences, as could have certain exclusive arrangements. However, the UMTS Forum feels that this is sufficiently covered by existing European and national legislation and should not be any different in the case of consortia bidding for a UMTS licence.

---

*2. The UMTS Forum holds the view that the existing EU and national competition rules, and any specific auction or comparative bidding rules, are sufficient to solve problems related to consortia.*

---

Any assessment of applications should take into account the benefits of allowing current operators into the UMTS market in terms of synergies and existing commercial experience, balanced against those of letting in new entrants whereby introducing new competition.

The Licensing Directive states that potential licensees should not be excluded from the UMTS licensing process except for reasons of scarce resource e.g. numbering constraints and spectrum availability. Therefore the UMTS Forum sees no reason to exclude certain categories of bidders, such as existing or new operators.

5 - Directive 97/13/EC of the European Parliament and of the Council on a Common Framework for General Authorisations and individual Licences in the field of Telecommunications Services.

---

3. *The UMTS Forum sees no reason to exclude certain categories of bidders, in particular not existing telecom operators in terms of synergies and existing commercial experience, subject to specific competition requirements.*

---

## 4.2 Spectrum issues

### 4.2.1 Number of licences to be awarded

The number of licences to be awarded requires a balance between:

- The need to give each operator enough spectrum to enable sufficient service capabilities, efficient use of the spectrum, and permit business viability, and
- The need to have enough operators within the available spectrum to maintain and promote a fully competitive market

In a separate report the UMTS Forum has, among other matters, studied the minimum spectrum requirements for service provision that will assist in determining the maximum number of operators<sup>6</sup>. For this reason the issue is not dealt with in this report.

Any limitation to the number of operators should only be made on the basis of the scarcity of the spectrum. Scarcity of spectrum is in some respects a relative concept, deriving from the various options that may be applied in dividing and packaging the allocated bands. Packaging, in turn, is largely driven by the functionality required of the spectrum in terms of the services that are intended to be delivered.

Identifying and specifying the service requirements is therefore central to spectrum packaging and licensing. Many of the high bit rate services envisaged for delivery by UMTS may not require a guaranteed short response (low-delay) time. However some potentially valuable services to users may require low-delay capabilities and it is not the task of the UMTS Forum to attempt to predict "winning" applications.

Clear specification of service requirements and functionality, however, should not be the sole criteria in determining the number of operators to be awarded UMTS licences. Packaging of spectrum and licensing of operators occurs within the current marketplace and against the background of the broader policy and regulatory framework relating to telecommunications

6 - UMTS Forum Report No 5 on minimum spectrum demand per public terrestrial UMTS operator in the initial phase.

services as a whole. Accordingly, it is essential that spectrum packaging for UMTS evidences due consideration of the interests of consumers and the need to maintain and promote effective competition within the constraints of the minimum spectrum requirements recommended by the UMTS Forum.

---

*4. The UMTS Forum recommends that in determining the appropriate number of licences to be awarded, Administrations undertake thorough research and careful analysis of realistic service requirements in order to determine reasonable functional requirements and thereby appropriate spectrum packaging*

*This should be done within the constraints of the minimum spectrum requirements recommended by the UMTS Forum, having regard to:*

- current levels of consumer choice and service innovation;*
- existing and future market structures and dynamics, in particular, without limitation, the likely effects upon consumers and competition of any difference between the number of GSM licences and the number of licences proposed for UMTS.*

---

## 4.2.2 Spectrum availability

The spectrum for FPLMTS/IMT-2000 was designated at WRC-92<sup>7</sup>. Following this an ERC Decision on the frequency bands for the introduction of UMTS was adopted<sup>8</sup>. At EU level, a Decision on the co-ordinated introduction of UMTS is presently being developed<sup>9</sup> obliging all Member States to make the whole UMTS band available. Further spectrum for terrestrial UMTS will be considered at WRC-2000.

The UMTS Forum considers that the complete spectrum designated for UMTS should be made available by Administrations as soon as possible, in order to ensure effective competition within the UMTS market from the outset.

---

*5. The UMTS Forum recommends the Administrations to make the whole UMTS band available as soon as possible.*

---

<sup>7</sup> - Rec. ITU-R M.687-2, Future Public Land Mobile Telecommunication Systems (FPLMTS).

<sup>8</sup> - ERC Decision (97) 07 on the frequency bands for the introduction of the Universal Mobile Telecommunications System (UMTS), 30 June 1997.

<sup>9</sup> - COM (1998) 58 final, Proposal for a European Parliament and Council Decision on the co-ordinated introduction of mobile and wireless communications (UMTS) in the Community.

### 4.2.3 Refarming

With regard to refarming, the UMTS Forum feels that there is a need for Administrations to consult the industry on a way forward. The consultation should take account of the interests of existing operators, new entrants, consumers and the government telecommunication policy at the time as well as the requirements of existing legislation.

Prior to consultation, regulators should not presume that operators would automatically want to reform their existing spectrum allocation to provide mobile telecommunication services using the UMTS standard.

If the policy for refarming remains significantly unclear at the time of licensing this will introduce a considerable degree of risk and as a consequence uncertainty in valuation into potential UMTS operators' business cases and, more generally, introduce uncertainty into the market place as a whole.

Refarming will clearly be an issue of the future and consideration will need to be given to technical, regulatory and competition issues. The UMTS Forum urges studies to be undertaken on these issues as soon as possible.

---

*6. The UMTS Forum strongly advises the Administrations to consult with industry on a way forward about the possibilities to reform the existing GSM 900 and 1800 bands for UMTS.*

---

## 4.3 Licensing considerations

### 4.3.1 Fixed and Mobile networks

In the UMTS environment the distinction between fixed and mobile networks will be increasingly blurred. If the full UMTS vision is to be realised within the envisaged time scales the licensing of UMTS operators must allow for a convergent approach.

The UMTS Forum believes that there are two key principles for the regulatory approach to this converging environment:

### **1. UMTS licensing conditions should be formulated within the current regulatory framework.**

In principle there are no regulatory barriers to convergence today. Under their existing licences operators of mobile networks are usually not allowed to provide transmission capacity for purposes other than mobile services mentioned in the licence, however they can apply for a new licence that would allow them to provide fixed services. Nevertheless, in certain countries there could arise specific licensing problems (e.g. where fixed and mobile services and networks are subject to different licensing procedures).

There should therefore be clarity as to what licensing regime and conditions are applicable to converged fixed/mobile services and networks.

**2. The development of UMTS services should be market, not regulatory, driven.** For this to occur effectively any regulatory or licence distortion, as well as artificial separation between market segments (e.g. between fixed and mobile) needs to be removed or avoided.

It also needs to be recognised that UMTS, as a service, does not start from a clean sheet. For that reason, migration paths from both fixed and mobile network infrastructures need to be enabled.

Based on these assumptions, the UMTS Forum concludes that there can be no single scenario for convergence.

---

*7. The UMTS Forum recommends that, where fixed and mobile services and networks are subject to different licensing conditions, the Administrations clarify which licensing regime and conditions are applicable to converged fixed/mobile services and networks.*

---

In the longer term the objective is to minimise regulation and to rely on competition law, whilst recognising that current telecommunications regulation is justified to establish effective competition.

The regulatory implications of WLL, in particular the licensing aspects related to the operation of wireless local loops as such, require further study.

## **4.3.2 Roll out and Coverage**

Fundamental to efficient use of the spectrum is that spectrum is not left unused longer than necessary. Roll out and coverage obligations can be important incentives to achieve an efficient use of the spectrum and will encourage infrastructure competition, which in turn will lead to effective competition between operators and low prices for consumers.

On the other hand it must be recognised that the commercial pressures upon operators to roll out their networks are extremely strong drivers to achieve efficient use of the spectrum and optimise coverage levels to meet customer demand. Any roll out obligations should not, therefore, have a distorting effect on the UMTS market by requiring roll out levels beyond those that the market demands.

Coverage obligations can be related to coverage of the territory (including coverage of the highways) or to a part of the population. As the geographical spreading of potential users may be very uneven, the best criterion would in most cases be based on a certain percentage of the population.

How much this would be and the time period in which the coverage obligation should be fulfilled may vary for different countries and markets. Different roads to achieve this can be followed, including national roaming and infrastructure sharing.

Report No. 1 from the UMTS Forum<sup>10</sup> states in section 8.2.4 that “*Coverage obligations for terrestrial UMTS components, if imposed, should consider the constraints of technology. In areas where terrestrial coverage is not economically or technically viable, UMTS services may be provided over satellite components.*” It is important that regulators consider the constraints of technology when setting coverage obligations for terrestrial UMTS components.

If an Administration decides to impose a coverage obligation, it should clarify what is meant by coverage. In defining coverage one needs to take into consideration the data rate and the transmission power of the terminal. E.g. does the coverage obligation encompass full wide area mobility (a bit rate of 384 kbit/s) with a handheld or only basic services with a lower bit rate or a portable terminal with more transmission power? Since the standardisation of UMTS terminals is not finalised and it is not clear yet whether and which different power classes will be defined, it is too early to make a more specific recommendation about this issue.

---

8. *The UMTS Forum recommends that any obligations such as roll out and coverage should be appropriate to ensure competition in infrastructure and that frequencies are not left unused longer than necessary.*

*Service roll out of the networks should be based on market demands.*

---

<sup>10</sup> - Report No.1 from the UMTS Forum on a regulatory Framework for UMTS.

### 4.3.3 Roaming

#### International roaming

Following the success of international roaming using GSM, international roaming between UMTS operators can only be encouraged. UMTS spectrum allocations should be in line throughout all regions, and the development of standards to allow international roaming should be encouraged. (For a definition of international and national roaming, see Annex I. Vocabulary of Terms).

#### National roaming

Within the UMTS market place, consideration must be given both to roaming between the third-generation operators only, and to roaming between third and second-generation operators. Effective long-term competition is best attained through a combination of infrastructure and service provision competition. This enables customers to benefit from lower prices, increased services and the ability to subscribe to services from an alternative operator. With a number of companies competing to meet the needs of the customer, innovation will be ensured, as it is essential if companies are to remain financially viable in the long run. Given this viewpoint, it is important that Administrations take account of the long-term competitive environment when developing their plans for licensing UMTS and in particular their approach to UMTS roaming. The impact of national roaming regulatory policies on infrastructure competition depends on the state of network development in each country.

It is important that Administrations take due account of the costs and benefits of national roaming within their own member states to ensure that whatever regulatory regime is put in place it yields benefits to consumers, UMTS industry and economy.

National roaming can offer a consumer benefit allowing any customer to initiate or receive calls at locations which otherwise would not be served by their network operator. This could lower the barrier to market entry for new operators with no existing mobile access infrastructure and could provide for a better total coverage for the end user.

This potentially could yield significant benefits for competition and customers. However, Administrations should recognise that significant benefits will only arise if efficient entry<sup>11</sup> is the norm. It is therefore important, if Administrations implement national roaming, that it is conducted in a manner that does not create an arbitrage opportunity where efficient entry<sup>12</sup> is deterred whilst inefficient entry is encouraged. Otherwise a distorted competitive market environment will be created to the detriment of the end user, UMTS industry and economy.

<sup>11</sup> - Efficient entry implies that operators are efficient in terms of long-run cost structures.

<sup>12</sup> - Inefficient entry implies that operators are not efficient in the long run but can compete in the short run as a consequence of an arbitrage opportunity that enables them to exploit short-term profits at the expense of the long-term development of the industry.

If UMTS operators establish national roaming agreements from an early stage, it may discourage them from building their own networks, which could impact innovation in the market place at operator, service and content provider levels. With operators deploying their own infrastructure rather than using that of another operator, they can deploy leading-edge technology that facilitates the development of advanced services. On the other hand, if incentives to invest in network infrastructure are low technical and service innovation may not be assured.

Given the importance of infrastructure competition as outlined above and the conflict with national roaming, administrations must ensure that an appropriate balance is reached between national roaming and infrastructure competition.

This clearly depends on the state of network developments in each country and could be countered by the appropriate use of roll out and coverage licence obligations, as well as by selective use (e.g. time limited) of national roaming.

In the case of time limited use of national roaming though, care should be taken in setting the appropriate time period. Otherwise it is likely that a distorted market structure will be created, prompted by one operator's ability to "free ride" on another operator's investments.

Currently customers who roam internationally accept service limitations when away from their home network and similarly there would be service limitations for national roaming customers. Customer education will promote the advantages relative to the limitations of national roaming. However this may not be an issue if UMTS provides full service portability according to the VHE concept from the start.

Regulators should not lose sight of pricing which is a key issue for any customer and could be of particular concern in remote areas. Given the substantial cost of building out networks in remote areas, regulators must bear in mind that the ability to nationally roam could incur an additional cost as the cost of service provision may vary significantly.

---

9. The UMTS Forum recommends that::

· licence conditions should not prevent commercially negotiated roaming agreements to be reached between operators.

· each administration makes its own decision on national roaming, taking into account their own state of infrastructure development and market competition and the objectives to be achieved.

· national roaming should not as a matter of course be mandatory due to detrimental effects upon competition and infrastructure roll out. It is recognised that under certain circumstances in a particular country mandatory national roaming may be justified as an exception. In these cases, the details of regulation should be carefully designed in order to minimise these detrimental effects.

---

#### 4.3.4 Infrastructure sharing/ Facility sharing

There might be significant economic reasons for the shared utilisation of existing or new network infrastructure. Sharing of infrastructure between network operators might help to reduce infrastructure cost and speed up network deployment. Consequently, infrastructure sharing might foster the rapid introduction of affordable services. On the other hand infrastructure sharing might conflict with one of the primary regulatory goals: the introduction of effective infrastructure competition between public operators.

At a first glance both goals may seem to be contradictory, though a precise understanding of the different levels of infrastructure sharing might be helpful to attain both goals.

A clear distinction should be made between:

- \* sharing of facilities (like sites and/or masts) and
- \* sharing of network infrastructure (radio, transmission)

In some European countries, the sharing of facilities like sites and/or masts among mobile operators is common practice. The arrangements are normally made on a commercial basis. Site sharing aids to reduce redundant cost in site acquisition, site development and mast construction. Moreover, it supports new entrants in raising competition as incumbents might have already occupied the best sites. For UMTS, site sharing will also reduce interference between networks and increase total capacity.

Site sharing is also important to overcome environmental concerns (e.g. protests against too many masts).

Hence, site sharing in the above-described way does not jeopardise the goal of infrastructure competition but may give rise to problems regarding property rights.

On the other hand, the sharing of network infrastructure other than above-mentioned site sharing may cause conflicts with the idea of infrastructure competition. In that respect it is very similar to national roaming. Far reaching network infrastructure sharing will definitely lead to the abolishment of infrastructure competition. The sharing of frequency and transmission capacities will result in negative effects on the willingness to compete on capacity and prices. Even the sharing of radio at and transmission lines to masts may endanger infrastructure competition, as competitors will get valuable information about the strategy of their counterparts. Moreover, sharing of network infrastructure might also lead to severe network integrity problems.

However, allowing infrastructure sharing in rural areas would enable regulators to achieve a total better coverage of a country than when complete infrastructure competition is required, in the same way as has been pointed out before with regard to national roaming in section 4.3.3.

In principle, to impose a mandatory sharing requirement on operators would entail undesirable interference in the market, but there might be specific cases where mandatory sharing would be desirable. Operators should retain discretion over the use of the infrastructure in which they have made substantial investment. Players should be allowed to negotiate amongst themselves in line with market forces, rather than having more barriers to competition with regulated tariffs.

In addition, each sharing situation is different. It would be practically impossible for the regulator to come up with a standard assessment of costs. For that reason, the UMTS Forum believes that sharing should be conducted on a commercial basis, with operators negotiating to set the appropriate level of tariffs.

Mandatory sharing would not be acceptable except as a means to fulfil the essential requirements of the Licensing Directive regarding environmental planning or in cases of limited access (e.g. bridges, tunnels).

---

#### *10. The UMTS Forum recommends that::*

- facility sharing should be allowed on a commercial basis to foster the rapid deployment of networks and the introduction of services.*
  - the sharing of network infrastructure should be allowed, but restricted if it conflicts with the goal of infrastructure competition.*
  - mandatory sharing would not be acceptable except as a means to fulfil the essential requirements of the Licensing Directive regarding environmental planning or in cases of limited access (e.g. bridges, tunnels).*
- 

### 4.3.5 Experimental phase

Some countries may consider the introduction of an experimental phase, in conjunction with a normal UMTS licence, before the start of UMTS network operation by 2002. This may have great value for the UMTS operators, facing a new market and relying on new technology. UMTS licences should therefore allow confirmed UMTS operators to perform commercial experiments and, particularly, to get access to the frequencies needed before the start of UMTS network operation.

Two types of experimentation can be identified:

1. Technical experimentation (in limited areas) could be performed by any player without any restriction except spectrum availability. The option of technical experimentation should be covered by national legislation.
2. Commercial experimentation (on a wider scale) should be reserved for confirmed UMTS licensees only, to enable them to test and validate technical and commercial options.

---

*11. The UMTS Forum recommends that besides technical experimentation, which should be allowed for any player, it may be necessary for UMTS to have a commercial experimentation phase take place before the start of UMTS network operation by 2002. UMTS licences should therefore allow confirmed UMTS operators to perform commercial experiments and, particularly, to get access to the frequencies needed before the start of UMTS network operation.*

---

## 4.4 Regional licences

Wide availability of service should be a key objective of any UMTS licensing policy.

In this respect, lessons can be drawn from the success of second-generation mobile communications. Whilst regional licences were appropriate and successful in some parts of the world (particularly in very large countries), most second-generation licences in Europe have been issued as national licences. Where regional licences have been issued in a competitive bidding environment, the operators have amalgamated several regional licences to form a national licence.


Regional licences, especially licences for small areas or even a single city, could lead to 'cherry-picking', resulting in certain areas receiving no service at all at the detriment of the end user. Moreover, allocation of regional licences could lead to inefficient use of spectrum, as protection bands would need to be designated between different regions, otherwise spectrum interference could prevail.

These disadvantages combined with the success of national licences for second-generation mobile communications lead, in the European case, to a clear vision in favour of national licences for third-generation mobile communications. In some other parts of the world regional licences (for large regions) could be a better choice.

Two exceptions to this general rule can be envisaged:

1. In special geographical circumstances (e.g. islands or remote areas), a regional licence could be used to cover an area, if it would not otherwise have had coverage from the national operators.
2. It may occur that an Administration intends to license a total number of operators for which there is not enough spectrum available at the time of commercialisation. The Administration in question may then consider dividing the available spectrum geographically between all UMTS operators. This means that temporarily, awaiting the availability of more spectrum enabling national coverage for all operators, the UMTS operators would only be able to operate in a limited geographical area, and the licence would have the effect of a regional licence during this period. This situation of temporary regional licences would have to be combined with a system of mandatory national roaming, to ensure that all subscribers of the several operators could make and receive calls nation-wide.

It is important to safeguard that this measure would not hamper the further availability of UMTS spectrum.



---

*12. The UMTS Forum recommends that network licences for UMTS should be issued on a national basis to ensure wide availability of service. Special geographical circumstances or temporary national licences to be converted into a national licence when sufficient spectrum becomes available could justify an exception to this recommendation.*

---

## 5.1 Private networks

Business users are expected to be early adopters of UMTS. They will want availability of private UMTS networks and public UMTS networks. Seamless interworking between public and private networks is an important requirement in this respect. This includes interworking, roaming and hand-over between both types of networks, and extension of the VHE to the private environment. Businesses will also develop innovative mobile applications, tailored to the needs of their customers or their internal need.

Timely availability of private UMTS communication capabilities will stimulate market development and contribute significantly to the market volume. It will spur a more rapid introduction of UMTS coverage, equipment and services and allow more niche applications. It is therefore essential that the spectrum and licensing issues for private UMTS are resolved preferably at an early stage in the licensing process.


Private UMTS telecommunications networks should, where possible, become authorised by "general authorisation" i.e. without the requirement for an individual licence (also called "class licence"). This would be in line with the requirements of the Licensing directive. Individual licences or associate fees should not be necessary, analogous to the private use of DECT now.

The general authorisation relating to spectrum use may be expected to impose conditions relating to essential requirements, such as standards as well as technical parameters to ensure effective use of the spectrum and to avoid harmful interference between radio-based telecommunication networks.

It is conceivable that technical standards will emerge which could permit the utilisation of spare capacity in local facilities in private networks as a privately provided transport network (say in a building or a very local area) for public use. Logically and from a service point of view, the customer would be connected to the public network<sup>13</sup>.

From a licensing view, for the public operator this type of service would simply be one of the features of the overall UMTS service. However, in the absence of more information regarding emerging standards, it is practically impossible and beyond the scope of this report to deal in any detail which impact this matter might have on the licence of the "public" operator and on the licence or authorisation of the private operator.

<sup>13</sup> - This situation is distinct for pure private use of the private network. In this letter case (similar to the current wireless PABX's), the user is logically and from a service point of view connected to the private network. Connection to the public network occurs via an interface between private and public network (typically a user network interface (UNI), only when a call involving a public network party is set up.



---

The distinction between private and public networks requires further study. In particular, it will be necessary to clarify which regulatory status (private or public) different cases will have (e.g. whether a service, offered free of charge by an airport to its visitors, is of a public or private nature).

---

*13. The UMTS Forum recommends the Administrations to resolve the spectrum and licensing issues for private UMTS preferably at an early stage in the licensing process. The Administrations should authorise private UMTS telecommunications networks, where possible, by "general authorisation" (class licence).*

---

## 5.2 Unco-ordinated bands

---

Private UMTS networks are likely (similar to the private use of DECT) to use bands for "unco-ordinated operation". The possibility exists for private networks to share a single "unco-ordinated" band with WLL and other applications, although this needs further study.

Additional standardisation and frequency allocation activities will be required, including the following aspects:

- Network interfaces, different from the UTRAN interface, may be required.
- As regards the radio interface, the modes of operation and technical parameters (e.g. FDD or TDD, power levels, signalling formats, and so on) must be agreed within the standardisation process. These standards will also be the basis of the rules to be applied to the use of the unco-ordinated bands, e.g. how should interference between neighbouring cells be dealt with?
- The appropriate frequency authorities must allocate, as a part of the total UMTS band, the bands for private network applications.

---

*14. With respect to the unco-ordinated bands, the UMTS Forum recommends that:  
9 the standardisation bodies define the standards for use of the unco-ordinated band without delay,  
9 the frequency authorities allocate and/or clarify the rules for use of the unco-ordinated bands.*

---

It should be noted that, as stated in Report No. 1 from the UMTS Forum, the core UMTS band should be designated mainly for full mobility applications.

Satellite systems, due to their global nature, will play an important role in the development of UMTS in areas where terrestrial coverage is not economically or technically viable.

It is of major importance to avoid regulatory barriers to the integration of the UMTS satellite component. A harmonised approach to frequency management for the satellite component of UMTS will be key in order to avoid technical and operational difficulties in the management of UMTS satellite systems. Frequency management in a UMTS satellite system must evolve in real-time with traffic demand and, for non-geostationary systems, spot beam motion. This requirement implies the use of varying channel frequencies in different geographic areas. Harmonisation on a regional basis is essential and simplifies frequency management, but is not necessarily required on a global level.

There is a need for a harmonised approach to spectrum for UMTS satellite services preferably on a global basis but at least on a regional basis. In addition, it is desirable to reach global agreement on the designation of spectrum for each UMTS satellite operator.

---

*15. The UMTS Forum recommends that Europe takes timely decisions on the designation of spectrum for UMTS satellite systems to ensure that European interests are duly considered by other Administrations.*

---

The CEPT ERC and ECTRA MRC (Milestone Review Committee) procedure is a consolidated process created for S-PCS in the 1.6/2.4 and 1.9/2.1 GHz MSS bands. This process, an extension to the due diligence process for satellite systems, includes a monitoring mechanism based on the fulfilment of a number of milestone criteria in order to assess the progress of each system requiring spectrum towards the offering of a commercial service. This milestone process, together with the ITU due diligence process, is intended to address the problem of 'paper' satellites in an administrative way. For S-PCS, the date of 1/1/2001 has been agreed upon to establish a level playing field for all satellite systems brought to the attention of the MRC before that date, through the mechanism of the ERC Decision (97) 03<sup>14</sup>, that comply with the milestone process in order to operate commercially in spectrum that had previously been designated to them on a provisional basis.

<sup>14</sup> - ERC Decision (97) 03 on the Harmonised Use of Spectrum for Satellite Personal Communication Services (S-PCS) operating within the bands 1610-1626.5 MHz, 2483.5 MHz, 1980-2010 MHz and 2170-2200 MHz, 30 June 1997.

---

*16. The UMTS Forum recommends that the CEPT reviews the milestone criteria and the date of 1/1/2001 for satellite systems that will be implemented later in the bands 1980 - 2010 MHz and 2170 - 2200 MHz, noting that satellite systems meeting all the milestone criteria before 1/1/2001 shall not have priority with regard to access to the available spectrum over other systems meeting all the criteria later but also before 1/1/2001.*

---

In order to achieve a globally harmonised introduction of the UMTS satellite component, consideration should be given to the possibility of extending the MRC decisions beyond Europe, using appropriate fora.

The Licensing Directive, in its Article 13, urges the Commission, in conjunction with CEPT, to take all the necessary steps for the operation of a One-Stop-Shopping procedure (OSS) for telecommunications services. The satellite industry has stressed the need to subject also the licensing of satellite networks and services to the OSS procedure<sup>15</sup>.

A properly designed OSS procedure for satellite service licences would be a very useful instrument to facilitate the development of satellite services, including UMTS applications, in a number of countries and should aim for the harmonisation of licensing conditions. The Commission should encourage the CEPT to work towards the extension of the OSS procedures to satellite services. This possibility is currently under study within CEPT.

At least one UMTS satellite system is planned for service by the expected start date of terrestrial UMTS. This will enable a global presence for UMTS in advance of the terrestrial component's achieving the same level of presence around the world as is now enjoyed by GSM.

The European Commission should encourage the CEPT to work towards the extension of the OSS procedures to satellite services.

---

*17. The UMTS Forum recommends that the European Commission encourages the CEPT to work towards the extension of the OSS procedures to satellite services.*

---

<sup>15</sup> - Report from the SAP RWG (Satellite Action Plan Regulatory Working Group, set up within the EC to deal with regulatory matters and matters and market access barriers)

## 7.1 Current legal framework

---

### *Recommendation 1*

*The UMTS Forum recommends that the general competition law framework should be used for UMTS in conjunction with the existing European and national telecommunications legislation. It is unnecessary to overlay the ordinary criteria of competition law with any additional rules when sufficient competition has been established in the telecom field.*

---

## 7.2 Public Terrestrial UMTS

### 7.2.1 Eligible candidates

---

#### *Recommendation 2*

*The UMTS Forum holds the view that the existing EU and national competition rules, and any specific auction or comparative bidding rules, are sufficient to solve problems related to consortia.*

---

---

#### *Recommendation 3*

*The UMTS Forum sees no reason to exclude certain categories of bidders, in particular not existing telecom operators in terms of synergies and existing commercial experience, subject to specific competition requirements.*

---

### 7.2.2 Number of operators

---

#### *Recommendation 4*

*The UMTS Forum recommends that in determining the appropriate number of licences to be awarded, Administrations undertake thorough research and careful analysis of realistic service requirements in order to determine reasonable functional requirements and thereby appropriate spectrum packaging.*

---

*This should be done within the constraints of the minimum spectrum requirements recommended by the UMTS Forum, having regard to:*

- current levels of consumer choice and service innovation;
- existing and future market structures and dynamics, in particular, without limitation, the likely effects upon consumers and competition of any difference between the number of GSM licences and the number of licences proposed for UMTS.

---

### 7.2.3 Spectrum availability

---

#### *Recommendation 5*

*The UMTS Forum recommends the Administrations to make the whole UMTS band available as soon as possible.*

---

### 7.2.4 Refarming

---

#### *Recommendation 6*

*The UMTS Forum strongly advises the Administrations to consult with industry on a way forward about the possibilities to refarm the existing GSM 900 and 1800 bands for UMTS.*

---

### 7.2.5 Converged fixed and mobile networks

---

#### *Recommendation 7*

*The UMTS Forum recommends that, where fixed and mobile services and networks are subject to different licensing procedures, the Administrations clarify which licensing regime and conditions are applicable to converged fixed/mobile services and networks.*

---

### 7.2.6 Roll out and coverage obligations

---

#### *Recommendation 8*

*The UMTS Forum recommends that any obligations such as roll out and coverage should be appropriate to ensure competition in infrastructure and that frequencies are not left unused longer than necessary.*

*Service roll out of the networks should be based on market demands.*

---

### 7.2.7 Roaming

#### *Recommendation 9*

*The UMTS Forum recommends that:*

- *licence conditions should not prevent commercially negotiated roaming agreements to be reached between operators.*
- *each administration makes its own decision on national roaming taking into account their own state of infrastructure development and market competition and the objectives to be achieved.*
- *national roaming should not as a matter of course be mandatory due to detrimental effects upon competition and infrastructure roll out. It is recognised that under certain circumstances in a particular country mandatory national roaming may be justified as an exception. In these cases, the details of regulation should be carefully designed in order to minimise these detrimental effects.*

### 7.2.8 Facility/ Infrastructure sharing

#### *Recommendation 10*

*The UMTS Forum recommends that:*

- 9 *facility sharing should be allowed on a commercial basis to foster the rapid deployment of networks and the introduction of services. The sharing of network infrastructure could be restricted if it conflicts with the goal of infrastructure competition.*
- 9 *The sharing of network infrastructure should be allowed, but restricted if it conflicts with the goal of infrastructure competition.*
- 9 *mandatory sharing would not be acceptable except as a means to fulfil the essential requirements of the Licensing Directive regarding environmental planning or in cases of limited access (e.g. bridges, tunnels).*

### 7.2.9 Experimental phase

#### *Recommendation 11*

*The UMTS Forum recommends that besides technical experimentation, which should be allowed for any player, it may be necessary for UMTS to have a commercial experimentation phase take place before the start of UMTS network operation by 2002. UMTS licences should therefore allow confirmed UMTS operators to perform commercial experiments and, particularly, to get access to the frequencies needed before the start of UMTS network operation.*

### 7.2.10 Regional licences

---

#### *Recommendation 12*

*The UMTS Forum recommends that network licences for UMTS should be issued on a national basis to ensure wide availability of service.*

*Special geographical circumstances or temporary national licences to be converted into a national licence when sufficient spectrum becomes available could justify an exception to this recommendation.*

---

## 7.3 Private networks and other use of unco-ordinated spectrum

---

#### *Recommendation 13*

*The UMTS Forum recommends the Administrations to resolve the spectrum and licensing issues for private UMTS preferably at an early stage in the licensing process. The Administrations should authorise private UMTS telecommunications networks, where possible, by "general authorisation" (class licence).*

---

#### *Recommendation 14*

*With respect to the unco-ordinated bands, the UMTS Forum recommends that:*

- the standardisation bodies define the standards for use of the unco-ordinated band without delay,*
  - the frequency authorities allocate and/or clarify the rules for use of the unco-ordinated bands.*
-

## 7.4 Satellite issues

---

### *Recommendation 15*

*The UMTS Forum recommends that Europe takes timely decisions on the designation of spectrum for UMTS satellite systems to ensure that European interests are duly considered by other administrations.*

---

---

### *Recommendation 16*

*The UMTS Forum recommends that the CEPT reviews the milestone criteria and the date of 1/1/2001 for satellite systems that will be implemented later in the bands 1980 - 2010 MHz and 2170 - 2200 MHz, noting that satellite systems meeting all the milestone criteria before 1/1/2001 shall not have priority with regard to access to the available spectrum over other systems meeting all the criteria later but also before 1/1/2001.*

---

---

### *Recommendation 17*

*The UMTS Forum recommends that the European Commission encourages the CEPT to work towards the extension of the OSS procedures to satellite services.*

---

## International roaming

The term international roaming applies to the facility allowing customers of a UMTS operator in one country to use the access network of a UMTS operator in another country (third/third-generation roaming). In this report, the term also covers the facility allowing those customers to use the access network of a second-generation operator in another country and vice versa (second/third-generation roaming).

## National roaming

The term national roaming applies in first instance to the facility allowing customers of one UMTS operator in a country to use the access network of another UMTS operator in the same country (third/third-generation roaming). In this report, the term also refers to the facility allowing those customers to use the access network of a second-generation operator in the same country and vice versa (second/third-generation roaming).

## Public network

“Public” is to be understood as “available to the public”, not as “owned by a public authority”.

The licensing directive itself does not include a definition of a “public network”, but refers to Council Directive 90/387/EEC of 28 June 1990 on the establishment of the internal market for telecommunications services through the implementation of open network provision and to the Interconnection Directive.

According to the Interconnection directive a “public tele-communications network” means a telecommunications network used, in whole or in part, for the provision of publicly available telecommunications services.

## Private network

“Private” is to be understood as the opposite of “public”, i.e. a private tele-communications network” means a telecommunications network not used, even not in part, for the provision of publicly available telecommunications services.

Private telecommunications networks cover a wide range of applications and markets, ranging from residential use, to small business, and to large corporate networks.

## Service provider

A person or another entity that has the overall responsibility for the provision of a service or a set of services to the customers and for negotiating network capabilities associated with the service(s) he or she provides.

## Unco-ordinated band (or spectrum)

Unco-ordinated bands/spectrum are also called **"unlicensed"** bands/spectrum. No individual licence is required for operating in these bands.

Note: Referring to the UTRA decision, it is likely that unco-ordinated bands will be part of the "unpaired" bands. The technical concept "unpaired" band however must be distinguished from the regulatory concept unco-ordinated band.

## Value-added service provider

A service provider who offers services that add value to other (basic) services. (A value-added service cannot be used alone, i.e. without a basic service.)

## Wireless local loop (WLL)

UMTS wireless local loops will be of two types:

- Substitute for wired loops: in this case the terminals are fixed, and wired to a "wall box" which interfaces to the antenna. In many cases this antenna will be placed outdoors, e.g. on the roof or a wall of the subscriber's home or building.
- WLL supporting limited mobility: the terminals have their own antenna. Mobility varies from semi-stationary (WLL operation avoids building wiring) to mobility within a micro or pico cell.

*A more comprehensive list of Terms can be found in Report No. 1 of the UMTS Forum.*

<b>CEPT</b>	Conférence Européenne des Administrations des Postes et des Télécommunications
<b>DECT</b>	Digital Enhanced Cordless Telecommunications
<b>ECTRA</b>	European Committee on Telecommunications Regulatory Affairs
<b>EDGE</b>	Enhanced Data Rates for GSM Evolution
<b>ERC</b>	European Radio Committee
<b>ETSI</b>	European Telecommunications Standards Institute
<b>FDD</b>	Frequency Division Duplex
<b>GPRS</b>	General Packet Radio Service
<b>GSM</b>	Global Standard for Mobile Communications
<b>IP</b>	Internet Protocol
<b>ITU</b>	International Telecommunication Union
<b>MRC</b>	Milestone Review Committee
<b>MSS</b>	Mobile Satellite Services
<b>ONP</b>	Open Network Provisioning
<b>OSS</b>	One-Stop-Shopping procedure
<b>PABX</b>	Private Automatic Branch Exchange
<b>PCN</b>	Personal Communications Networks
<b>SAP RWG</b>	Satellite Action Plan Regulatory Working Group
<b>S-PCS</b>	Satellite-Personal Communication Services
<b>TDD</b>	Time Division Duplex
<b>UNI</b>	User Network Interface
<b>UMTS</b>	Universal Mobile Telecommunications System
<b>UTRAN</b>	UMTS Terrestrial Radio Access Network
<b>VHE</b>	Virtual Home Environment
<b>WLL</b>	Wireless Local Loop
<b>WRC</b>	World Radio Conference



---

# NOTES



**Published by:** UMTS Forum,  
Russell Square House, 10 - 12 Russell Square, London, WC1B 5EE, UK  
Tel: +44 171 331 2020 - Fax: +44 171 331 2040 - E-mail: [umtsforum@fei.org.uk](mailto:umtsforum@fei.org.uk)