

**European Regulators' Group (ERG)**

**Report on**  
**“VoIP and Consumer Issues”**

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**The report was prepared by the  
End User Working Group**

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# VoIP and Consumer Issues

## Executive Summary

### Background

As electronic communications services are shifting to IP-based networks, VoIP services are becoming more common. They can differ from traditional services in a number of ways and can be used in addition to or to replace traditional telephone services.

If European citizens are to realise the full benefits of VoIP services, it is essential that they are enabled to make informed choices about the services they choose. It is important therefore that consumer information about VoIP services and how they differ from traditional telephone services is widely available and transparent.

For this purpose, ERG examined five areas in which regulatory challenges still exist and analysed how consumer interests are being served here at present. The report investigates the current status, providing helpful information for optimising the regulatory approach of each individual member state. Moreover, the report helps to identify areas for deeper harmonisation among the members of the ERG.

Harmonised regulation on consumer information with regard to VoIP services can considerably benefit ERG's stakeholders, i.e. telecommunication providers and consumers alike. For providers, harmonisation on information obligations has the potential to cut down compliance costs with national laws. For consumers harmonization could mean enjoying the same same or similar standards in relevant areas.

To obtain a meaningful picture of the regulatory status in the ERG, the same classification for VoIP services has been used as in the COCOM questionnaire (05-52)

The areas examined are

- Emergency services
- Numbering and number portability
- Tariffs
- Quality of Service
- Cross-border issues

### Emergency Services

The national systems adopted for handling emergency calls vary greatly, both from an administrative and a technical point of view. While some member states have only adopted the European number "112", several others operate more national emergency number(s) in addition to "112". Common limitations on emergency calls through VoIP services are related to nomadic use, routing of calls to the next Emergency Response Centre and power failures.

In the majority of member states (Czech Republic, Ireland, Finland, Hungary, UK, Switzerland, Slovenia, Belgium, Spain, Italy, Portugal and Norway) VoIP providers are obliged to inform their customers about any limitations of their emergency service.

In Malta and Estonia it is recommended practice to inform customers about possible limitations. In Sweden, Greece and Denmark respective regulation is being prepared, in Germany this question is under scrutiny. In general this information is made available in the terms and conditions of the contract. Other sources include user guides, operators' homepages or marketing material. Some countries (Czech Republic, Ireland, Malta) have specified explicitly how information should be made available and the UK has consulted on this (e.g. telephone announcements, number unavailable tones, SMS to the end user device, provision of stickers for the end user device).

### **Numbering and number portability**

The numbering schemes available for VoIP services vary greatly.

Several countries (Finland, Lithuania, Germany, UK, Ireland, Sweden, Greece, Spain and Slovenia) allow VoIP providers to offer both geographic and non-geographic numbers to end users, regardless of whether the VoIP service is PATS (Publicly Available Telephone Service)/non-PATS or fixed/nomadic. Other countries limit the availability of geographic numbers to certain types of VoIP services and have made non-geographic numbers available for VoIP services that do not meet this specified criteria.

In a few countries number portability for VoIP providers is all-embracing (Lithuania, Switzerland, Germany, Cyprus). The requirement to offer number portability here includes all services regardless of whether they are PATS/non-PATS or fixed/nomadic.

However, the majority of countries (Czech Republic, Finland, Malta, UK, Belgium, Austria, Sweden, Estonia, Hungary, Norway and Ireland) do restrict the requirement for VoIP providers to offer number portability to services classed as PATS, though in many cases other non-PATS – services may enter into porting agreements which precipitates number portability on a contractual basis.

In most countries, there is a general obligation to inform end users about the nature of the service. In those countries providers make information about their services available to the public in contracts, on websites and in information materials.

Ireland and Italy have mandated specific obligations regarding end user information on number portability and VoIP services and the UK has consulted on introducing such measures.

### **Regulation on Tariffs**

#### *Market Regulation*

With the exception of Ireland and Italy, no country has developed a specific regime to regulate retail tariffs of VoIP services providers. Most of the countries relate retail tariff regulation to the market review process, and have not notified a specific VoIP market as a relevant market within the meaning of the European directives. In some member states VoIP has been included within markets 1 – 6.

In contrast to this, Ireland regulates VoIP providers at the retail level. Ireland has set a retail tariff ceiling for the provision of "076" services (which include VoIP services).

In Italy all VoIP providers are subject to a non discrimination obligation between the tariffs applied to calls directed to geographic and non-geographic numbers (the latter are assigned for nomadic VoIP services).

### *Tariff Transparency*

In most countries (Portugal, Czech Republic, Finland, Hungary, Malta, Lithuania, Cyprus, UK, Ireland, Switzerland, Slovenia, Belgium, Estonia, Denmark, Bulgaria, Italy, Austria, Sweden, Greece, Norway, Netherlands, Germany also for Electronic Communication Services (ECS)) a minimum set of general rules regarding tariff transparency applies to every PATS provider, including VoIP providers. Some countries require operators to publish it on their websites, in the contract concluded with their customers or in newspapers. Some countries do not require a particular form of publication.

### *Measures to Control Expenditure*

Most of the countries do impose a general obligation for all providers to give their customers an itemised bill on request. However a significant number of countries (Czech Republic, Lithuania, Estonia, Greece and Bulgaria) do not impose this kind of obligation on VoIP service providers. In some countries (Portugal, Finland, UK, Sweden ) VoIP providers are only obliged to give their customers an itemised bill on request if they are PATS operators.

Beyond that, operators in most member states provide additional expenditure control mechanisms on a voluntary basis. Among these mechanisms are pre-pay facilities or credit limits, call-barring mechanisms, online-accounts and spread-out payments, etc.

### **Quality of Service**

For several countries, the provision of information on quality of service information is at the discretion of individual VoIP providers (Czech Republic, Ireland, Switzerland, Estonia, Denmark, Spain and Norway). However, a number of other Members States (Hungary, Slovenia, Bulgaria, Sweden, Cyprus, Germany, Italy, Austria, Malta and Lithuania) do require that all or particular VoIP service providers provide QoS information.

Where information is required, the quality of service parameters vary widely. They include transmission delays, packet losses, supply times, fault rates, fault repair times, billing complaints, complaint resolution times, the guaranteed level of quality and the date when the service shall be commenced. Hungary and Cyprus have developed specific QoS parameters for VoIP services.

In Spain and Ireland and soon the UK, VoIP providers must inform their customers about the manner in which a VoIP service may differ from traditional telephone services and any other restrictions. The UK has consulted on this type of requirement.

In the majority of Member States, information is made available in the subscriber agreement for the provision of the service. However, some countries do require specific modes and regularity of publication (Hungary, Cyprus, Ireland, UK).

### **Cross-border issues**

Member States have had little experience of cross-border consumer complaints.

The enforcement of rules against providers may be especially relevant in the case of VoIP but is also a problem concerning “traditional” telephone and internet services. Carrying out enforcement against non resident/EU entities is a challenge and requires cross-border cooperation between NRAs or other national administrations respectively.

Several countries report that the national legislation applies to the provision of electronic communication networks and services in the country - including services offered by foreign providers.

## **Conclusions**

The findings for emergency services and numbering and number portability show a wide consonance regarding regulation within the ERG member states. If VoIP services have limitations in the named areas, obligations to inform the end user do exist. Despite certain degrees of variance regarding the means - stemming from different legal cultures and nuances in the transposition of the NRF - there seems to be common ground for further integration in the near future (e.g. Principles of Implementation and Best Practice) which seems worth exploring.

As for tariffs, the majority of member states also have tariff transparency obligations in force. Here as well, cornerstones for tariff transparency could be developed. However if one chose to do so, this should be pursued in a wider context including all electronic communication services as a whole and should not be restricted to VoIP services.

For QoS the report shows a wide variance in the approaches taken by the different member states. Here, further fundamental work is necessary to assimilate the different approaches.

Lastly, the report demonstrates that cross-border litigations at the end user level have not yet become a significant issue for regulators in practice.

In line with the ERG Common Statement on VoIP, it is ERG's intention to address these issues further in the upcoming year and to overcome barriers to the internal market.

## Introduction

### Voice over IP

VoIP (Voice over Internet Protocol) means the delivery of voice services over networks based wholly or partly on Internet protocol (IP). As electronic communications services are gradually shifting to IP-based networks, VoIP services are becoming more common.

VoIP services can differ from traditional services in a number of ways and can be used in addition to or to replace traditional telephone services. They enable the provision of new innovative services such as video and presence management, so that voice is only one element of the service.

### Different types of VoIP services

There are several different types of VoIP services. For the purposes of this project, VoIP services have been classified in the following categories<sup>1</sup>:

1. A service or VoIP software from which there is no access to or from the PSTN and where E.164 numbers are not provided
2. A service where there is outgoing access to the PSTN only and E.164 numbers are not provided
3. A service where there is incoming access from the PSTN only and E.164 numbers are provided
4. A service where there is incoming and outgoing access to the PSTN and E.164 numbers are provided

	Outgoing access to PSTN	Incoming access to PSTN	E.164 number provided
Service 1	x	x	x
Service 2	✓	x	x
Service 3	x	✓	✓
Service 4	✓	✓	✓

The use of IP technology for corporates' internal telephone systems and for operators' backbone networks are outside the scope of this report.

### Regulation of VoIP services

The regulatory treatment of VoIP services flows from the EU regulatory framework. The objective of the framework is to enable the greatest possible level of innovation and competitive entry in the market, whilst ensuring that European citizens are adequately protected. If European citizens are to realise the full benefits of VoIP services, it is essential that they are enabled to make informed choices about the services they choose. It is important therefore that consumer information about VoIP services and how they differ from traditional telephone services is widely available and transparent.

<sup>1</sup> The same classification has been used in the COCOM 05-52 questionnaire

## Topics included in this report

The ERG chose five topics to be included in the report. Member states were asked to complete a questionnaire asking for information about the national regulatory approach to each of the five areas and the level of consumer information available.

- Emergency services

The ERG collected information on the regulatory status of providing access to emergency services and the different national systems adopted for handling emergency calls. This information was used to assess the restrictions of access to emergency services from VoIP services and the information available to consumers concerning the possible restrictions.

- Numbering and number portability

The ERG collected information on the regulatory status of numbering and number portability in VoIP services to assess the availability of number portability in VoIP services and the consumer information concerning the possible restrictions.

- Tariffs

The ERG collected information about the regulatory status of VoIP services and tariffs to assess the availability of tariff information and ways to control expenditure.

- Quality of Service

The ERG collected information on the QoS requirements and technically sensible value limits (e.g. EG 202 057-1, EG 202 057-2, EG 202 086, ITU-T Rec. G.101 und G.109) for VoIP services to assess the availability of QoS information of VoIP to consumers.

- Cross-border issues

The ERG collected information related to cross-border services to help identify problems concerning NRA's competence or other cross-border issues.

The responses to the questionnaire form the basis of this report.

## Topics not included in the report

Data security, protection of privacy and legal interception were identified by the ERG as potential issues to be looked at. However, these have been left outside the scope of this report because certain NRAs are not responsible for regulation of these issues in their member state and these topics are or have been already addressed elsewhere.

## Varying degree of regulation concerning the different types of VoIP services

The data collected showed a considerable amount of variance of regulation regarding the different types of VoIP services. Generally, it can be stated that regulation for class 1 services is low and increases with every class. To present this differentiated pattern of regulation across a multitude of member states was deemed impossible. Hence for detailed information of the state of regulation in specific member states, the country chapters in the Annex must be consulted.



## Emergency services

### Regulatory framework

According to the US Directive, it is important for end users to be able to call emergency telephone numbers – including 112 - free of charge from any telephone. All Member States should have in place arrangements to ensure that calls to this number are adequately answered and handled. Caller location information should be made available to the emergency services. This improves the level of protection and the security of users of 112 services and assists the emergency services - where technically feasible - in the discharge of their duties.

The end user's ability to access 112 from VoIP services varies depending on the regulatory treatment of the VoIP services provided. There might also be some technical restrictions concerning the provision of access or caller location information.

Reference: US Directive Art. 26

### Different National systems for handling Emergency calls

The national systems adopted for handling emergency calls vary greatly, both from an administrative and a technical point of view.

While some member states have adopted the single European number “112” - including Slovenia, Denmark, Sweden, Greece, Spain, and Netherlands - most member states have national emergency number(s) in addition to 112. These include Czech Republic, Finland, Hungary, Malta, Lithuania, Cyprus, Germany, Switzerland, Belgium, UK, Austria, Portugal and Norway. It is common to have additional national numbers for police, fire or ambulance.

The number of PSAPs (Public Safety Access Point) range from one (Malta) to several hundred (Germany). Most member states have a regional organisation, meaning that each PSAP covers a specific geographic area. In these cases the routing is based on the location of the caller. In Germany the emergency short number is translated into a special routing number used to route the call through all concerned networks to the geographically correct PSAP. This system is used in other member states as well.

Regarding the technical solutions for providing location information, in Germany the PSAP uses a reverse telephone number directory in case of an emergency call from the PSTN/ISDN or contacts the GSM network operator to obtain the cell ID in case of an emergency call from a GSM terminal (“pull” technology). In Lithuania the largest PSAP has an updated database of customers with the dominant fixed line operator. For mobile network “pull” technology is used.

In some other member states (Switzerland, Denmark, Netherlands and to some extent Norway and Italy) there is an obligation for providers of telephony services to terminate emergency calls through the USO provider's electronic communication network. In Greece the country's centralized PSAP is administered by the General Secretary for Civil Protection of the Ministry of Interior, but maintained and operated by the Greek incumbent operator. In the UK the emergency service is provided by 4 different telecommunications companies - other telecommunications companies have contracts with two of these for handling emergency calls. In Sweden a public service enterprise called SOS Alarm is responsible for receiving all emergency telephone

calls (112 - emergency calls). A provider neutral solution should be operational in Norway within the beginning of 2007.

The data from the member states indicate that the main limitations of using VoIP services when contacting emergency services are nomadic use, routing of calls and power failures.

Nomadic use of VoIP is a limitation because it is technically difficult to provide location information if the VoIP service is used nomadically. The VoIP service provider will in these cases normally not know the end users' whereabouts.

Some member states also point out that routing of calls to the correct geographical Emergency Response Centre is a limitation. In Germany some providers are able to do this, while others are not.

Importantly to note, Switzerland is about to install a system showing Emergency Response Centres whether the call is delivered via VoIP or not. Thus, the person processing the emergency call can make explicit inquiries regarding the whereabouts of the calling party.

Power failures will in most cases disconnect the VoIP service. However, this problem is not unique for VoIP services. It is known that power failures also could disconnect traditional telephony systems (PSTN/ISDN) and mobile telephone systems.

#### **Obligations on VoIP Providers to inform their customers if access to Emergency services is not available or restricted**

In the majority of member states, VoIP providers are obliged to inform their customers about any limitations of their service. These include Czech Republic, Ireland, Finland, Hungary, Switzerland, Slovenia, Belgium, Spain and Norway. This can be a specific obligation imposed on VoIP providers or based on a general principle for all telecom service providers to inform their customers about the conditions of use.

In Malta and Estonia there is no obligation, but it is recommended practice to inform customers about possible limitations. The UK has consulted on introducing obligations for providers to inform their customers where no access or less reliable access is provided and is due to publish its conclusions after this year. In Germany this question is also under scrutiny. Sweden is planning to either adopt a recommendation or to enact mandatory parameters about which the operator must inform. In Greece an obligation to inform will be considered after a public consultation. In Denmark providers shall ensure that calls to 112 are possible. Legislation, which obliges all providers, including VoIP-providers, to inform their customers about restrictions in locating the VoIP-call, is being prepared. In Portugal VoIP providers with E.164 numbering rights of use allocated (either geographic or nomadic) are obliged to route the calls to 112. VoIP providers without E.164 numbering, may do it (but they are not obliged to). If they don't offer the access to the emergency services they must inform the customer about the existent constraints, within the scope of the contract and of the offer conditions of the service.

In Italy VoIP providers with E.164 numbering rights of use allocated (either geographic or nomadic) are obliged to route the calls to 112. VoIP providers without E.164 numbering which provide calls to PSTN also have to offer the access to the emergency services and must inform the customer about the existent limitations in localization and power failure.

## How information is made available

In many member states the information is made available in the terms and conditions of the contract. These include Hungary, Finland, Malta, Switzerland, Slovenia, Belgium, Denmark, Germany, Italy, Spain and Portugal. Further common sources for information are user guides, the operator's homepage or marketing material.

Some member states have decided more specific ways on how to make information available. In Czech Republic providers of nomadic VoIP send a message to the telephone display. In Ireland and currently the subject of consultation in the UK when the VoIP service does not provide access to emergency calls, the provider should supply stickers for the end user device clearly indicating that calls to emergency services cannot be made from handsets connected to the service and if the emergency numbers are dialed, the provider shall provide a network announcement, stating, "Calls to Emergency Services cannot be made from this handset, please hang up and redial from an alternative network".

In Ireland and Malta, when the VoIP service does provide access to emergency calls, it is strongly recommended that the provider supply stickers which clearly indicate that calls to emergency services may fail, in particular if there is a loss of power or a fault in the packet data network. In Ireland VoIP providers should furthermore encourage customers to register their current address information with the service provider so that this information may be passed to the emergency services where appropriate and necessary. Again, Ofcom has consulted on introducing such measures in the UK.

The UK is currently consulting on a draft code of practice which would require VoIP providers to make information available in terms and conditions, at point of sale and at point of use (through use of labels, network announcements and number unavailable tones). Under the proposals, providers would be required to get positive acknowledgment – at point of signature, before the consumer enters into a contract – that access to 999 and location information are not available.

In Belgium, consumer information is regularly provided on the telephone bill.

## Numbering and number portability

### Regulatory framework

Number portability is a key facilitator of consumer choice and effective competition. End users who request it should be able to retain their number on the public telephone network independently of the organisation providing the service.

However, according to the US Directive, only subscribers of publicly available telephone services have the right to number portability. This might lead to restrictions for the availability of number portability in VoIP services which are not considered to be publicly available telephone services.

Reference: US Directive Art. 30

### User's ability to select the type of number (geographic or non-geographic) for the VoIP service

Nine member states allow VoIP providers to offer both geographic and non-geographic numbers to end users, regardless of whether the VoIP service is PATS/non-PATS or fixed/nomadic. These member states are Finland, Lithuania, Germany, UK, Ireland, Sweden, Greece, Spain and Slovenia (although VoIP providers in Slovenia currently choose to only use non-geographic numbers).

A further six member states limit the availability of geographic numbers to certain types of VoIP services and have made non-geographic numbers available for VoIP services that do not meet this specified criteria. In Austria, Italy, Hungary, Switzerland, the Netherlands, Portugal and Norway, geographic numbers can be used for VoIP services provided at a fixed location. Non-geographic numbers are available for nomadic services.

In the Czech Republic geographic numbers are available for PATS and non-geographic numbers are available for non-PATS.

Estonia, Malta and Denmark only have a non-geographic numbering plan so this is not an issue for them.

In contrast to this, Belgium has only allocated geographic numbers for nomadic services. And in Switzerland only geographic numbers are available for VoIP services.

Finally, Cyprus is currently reviewing the issue and no specific numbering has been made available as yet.

### Restriction of number portability for VoIP

Lithuania, Switzerland, Italy and Germany do not restrict number portability with regard to VoIP services. The requirement to offer number portability therefore includes all services regardless of whether they are PATS or non-PATS. In Cyprus this approach is under review.

However the majority of member states do restrict the requirement for VoIP providers to offer number portability. The following member states restrict number portability to services classed as PATS (though in many cases other non-PATS – services may

enter into porting agreements). That is the case in Czech Republic, Finland, Malta, UK, Belgium, Austria, Sweden, Estonia and Hungary. Hungary plans to require non-PATS providers to enable number portability for nomadic services using non-geographic numbers.

Similarly, in Norway, number portability is restricted to services using geographic numbers at a fixed location.

In Ireland, number portability is also required of providers offering PATS. However in addition to this, providers offering non-PATS (i.e. ECS) must also offer number portability on request by a PATS provider, but only if that PATS provider confirms they are prepared to offer number portability to the non-PATS provider. For the time being, it has deferred number portability obligations on non-geographic numbers until 2007.

Greece and Spain have yet to impose number portability requirements.

### **Obligations on VoIP providers to inform their customers about restrictions?**

In most member states, there is no specific obligation to inform end users that they may not be able to port their VoIP number. But in several member states a general obligation exists to inform end users about the nature of the service.

However the UK has consulted on a Code of Practice that would require VoIP providers to inform their customers of any limitations or restrictions to the service. The objective of this is to manage consumer expectations – given that consumers have come to expect certain features or service levels from their traditional PSTN service. The draft Code of Practice currently includes a requirement for providers to inform their customers if they do not offer number portability. Similarly Ireland also has specific requirements to provide information on number portability (see below).

### **How information is made available**

Again, in most member states general requirements for providers exist to make information about their services available to the public in contracts, on web sites and information material.

In Ireland, if a provider is unable to offer a number porting facility, this must be clearly stated in all advertising and promotional materials describing the service that are made available to prospective customers in advance of the point of sale and in the provider's customer service contract. A similar situations exist in Finland and Hungary. In Belgium, the telephone bill is used as an additional means of providing information.

In the UK, Ofcom's proposed Code of Practice requires this information to be provided during the sales process, within terms and conditions, in a user guide (if any) and in the provider's general consumer code of practice.

## Tariffs

### Regulatory framework

Consumer information on tariffs relates to the availability of tariff information and ability for consumers to monitor and control how much they are paying. In some member states, retail price regulation is in place for universal service obligations or SMP providers.

As competition has increased across markets, the range of tariff options has also increased as more service providers enter the market and seek to enhance or differentiate tariff options to appeal to target markets. While this increases consumer choice, it will only be of benefit to consumers if they have access to clear, comparable, tariff information.

Reference: US Directive Art. 21 (tariff transparency), Art 10 and 29 (control of expenditure)

### Regulatory status of VoIP services and tariffs

- Market regulation

In general, no member state has developed a specific regime to regulate the retail tariffs of VoIP services providers. Most of the member states relate the regulation of retail tariffs to the scope of the market reviews, and have not specified a VoIP market as a relevant market within the meaning of the European directives (Malta, Germany, Slovenia, Belgium, Estonia, Austria, The Netherlands, UK, Cyprus and Denmark). However, in some member states VoIP has been included within markets 1 – 6.

In contrast to this, Ireland regulates VoIP providers at the retail level. Ireland has set a retail tariff ceiling for the provision of “076” range services (which include VoIP services). In Italy all VoIP providers are subject to a non discrimination obligation between the tariffs applied to calls directed to geographic and non-geographic numbers. The tariff for a call directed to a non-geographic number (“55” code allocated to nomadic services) should not exceed the tariff that would apply to the same customer had he chosen a geographic number.

- General consumer law

In most member states a minimum set of general rules regarding tariff transparency applies to every PATS provider, including VoIP providers (Portugal, Czech Republic, Finland, Hungary, Malta, Lithuania, Italy, Cyprus, UK, Ireland, Switzerland, Slovenia, Belgium, Estonia, Denmark, Bulgaria, Austria, Sweden, Greece, Norway, Netherlands, Germany also for ECS). These rules may include, for example, the obligation for providers to publish their tariffs or to put specific indications in the contract concluded with the customer.

There is currently no tariff differentiation between nomadic and non-nomadic VoIP services.

### Availability of tariff information

Most member states impose an obligation on VoIP providers to publish tariff information. Some member states require providers to publish it on their websites and/or in

the paper version of the contract concluded with their customers or in some newspapers (Portugal, Finland, Hungary, Malta, Lithuania, Italy, Cyprus, UK, Estonia, Bulgaria, Sweden, Spain, Norway and Denmark). Some member states do not impose a particular form of publication (Switzerland, Slovenia, Belgium Germany).

The Czech Republic makes a distinction on this point between PATS and non-PATS providers. Non-PATS providers have to provide information about the methods to obtain the latest information on all services. Denmark requires providers to give charge advice facilities to their customers. These facilities include call set-up charges and prices per minute, but not to numbers series designated for information and content services.

### **Ways to control expenditure**

In some member states, VoIP providers are obliged to give their customers an itemised bill on request if they are a PATS provider (Portugal, Finland, UK, Sweden) or universal service provider (Ireland, Malta). Most of the member states do impose a general obligation for all providers to give their customers an itemised bill on request (Hungary, Cyprus, Germany, Switzerland, Slovenia, Denmark, Austria (not for VoIP service 1),, Spain, Norway) but a significant number of other member states do not impose this kind of obligation on VoIP service providers (Czech Republic, Lithuania, Estonia, Greece and Bulgaria).

In Belgium this obligation is related to litigation against the bill. In this case the providers, including VoIP providers, must provide an itemised bill on request. In Portugal, if a VoIP service is offered under conditions perceived by the user as equivalent to those in traditional fixed telephone service, the provider must give an itemised bill where requested.

The legislation in Denmark states that an itemised bill means a bill itemising the services charged to such a level that the end-user is able to identify their usage of the service, including details of the number called, date, time, duration, price, or similar data serving as a basis for billing the usage of the service. In Germany the NRA has published a recommendation on the format of the itemised bill. Other than this, there are often no provisions concerning a specific form - but Sweden is about to issue regulations regarding requirements and format of an itemised bill.

There is a clear division between member states which require itemised bills to be provided free or charge and those that do not. In Finland, Hungary, Malta, Cyprus, Denmark, Austria, Germany (the standard format), Slovenia and Sweden the itemised bill must be free of charge. This is not the case in Czech Republic, Switzerland, and Spain. Norway imposes a cost-oriented tariff for itemized billing. UK requires PATS providers to provide the itemised bill at no extra charge or for a 'reasonable fee'. In Belgium the detailed bill must be free of charge in case of litigation.

### **Other ways to control expenditure**

In general, additional expenditure control mechanisms are provided widely on a voluntary basis. These mechanisms include pre-pay facilities or credit limits, call-barring, online-accounts and spread-out payments.

In Finland, call-barring is an obligation imposed on PATS providers. In Denmark, PATS and mobile providers employing usage-based charging must offer their customers a billing control arrangement, call-barring and billing monitoring facilities. The Lithuanian law gives the customer the right to be informed about the accurate

status of their usage. In Belgium there are different mechanisms available: pre-paid and spread-out payments (USP only); measures in case of non-payment; and measures to prevent communications towards certain categories of numbers.



## Quality of Service (QoS)

### Regulatory framework

Quality and price are key factors in a competitive communications market. Providers operating in a competitive environment may or may not be willing to publish comparable information dependent on whether or not this gives them a commercial advantage.

According to the US Directive, NRAs may require providers of publicly available electronic communications services to publish comparable, adequate and up to date information for end users on the quality of their services. The aim is to ensure that end users have access to comprehensive, comparable and user friendly information.

Reference: US Directive Art. 11 and Art. 22 (QoS information)

### The availability of QoS information for VoIP services

At present, a number of Member States do not require that QoS information for VoIP services is made available. These include the Czech Republic, Ireland, Switzerland, Estonia, Denmark, Spain and Norway. The provision of such information is at the discretion of the respective undertaking providing the VoIP services.

However, a number of other Member States do require that all or particular VoIP services providers provide certain QoS information. In particular Hungary, Slovenia, Bulgaria, Italy, Sweden and Finland require that all providers - irrespective of whether they are VoIP providers or traditional telephony providers - make available specific quality of service information in service contracts with subscribers. Cyprus has particular QoS information obligations that apply specifically to VoIP providers.

Other member states require that information is provided only by particular VoIP services. Therefore in Germany and Austria the obligation is incumbent only on undertakings that provide PATS and in Malta and Lithuania only on the Universal Service Provider.

In the UK, only certain fixed voice service providers which meet turnover and call minute thresholds are required to publish QoS information - however all providers of VoIP services will be required to inform their customers about reliability. In the Netherlands, the information need only be provided if the undertaking in question has been commercially active for more than twelve months.

### Quality of service parameters

Some member states do not specify which QoS parameters should be measured but merely require generic information on the quality of the VoIP services. These include Lithuania, Slovenia, Austria, Sweden, Belgium and Netherlands. Belgian legislation allows the regulatory authority to determine key performance indications.

Other member states require that VoIP services report on some or all of the QoS parameters listed in Annex III of the Universal Service Directive (2002/22/EC). In Portugal, Regulation on Quality of service applicable to the service of access to the public telephone network at a fixed location and the publicly available telephone service at a fixed location is applied to providers offering VoIP service at a fixed location. The regulation requires information on supply time for initial network

connection, fault repair time, response time for operator services. These parameters are based on ETSI Guide EG 201 769-1 V1.1.1 (2000-04) with some adaptations to the national market in Portugal. The same regulation is applied in Italy. Finland requires information on the response time for operator services services . The UK requires information on supply times, fault rates, fault repair times, billing complaints and complaint resolution times (cf. Ofcom's statement on setting quality of service parameters([www.ofcom.org.uk/consult/condocs/qualitystate/statement/statement.pdf](http://www.ofcom.org.uk/consult/condocs/qualitystate/statement/statement.pdf))). UK providers are also required to publish information on the number of complaints processed within 28 days.

Germany (only in respect to PATS) and Malta (only if the services are provided by the Universal Service Provider) requires VoIP services to provide information on all the parameters in Annex III.

Only two member states appear to have determined additional QoS parameters specifically for VoIP services. Apart from the parameters listed in Annex III referred to above, Hungary requires also that the VoIP service providers make available information on the bit fault ratio per access line regarding the secondary usage for data transmission, on abnormal suspension of services (total time in a year) which affects the full territory of the service or which affects at least ten percent of its subscribers, on the guaranteed upload and download speeds and on the bit fault ratio by access lines. The preliminary declaration and regular measurements of the parameters mentioned above are prescribed by the Hungarian Governmental Decree No. 345/2004. (XII. 22.) but without measuring methods, and prescribed exact values (only the list of parameters). For helping the common interpretation, the National Communications Authority, Hungary (NCAH, NHH) issued a non-obligatory recommendation suggesting measuring methods for all prescribed parameters. The aimed (undertaken) exact values of parameters must be declared in advance, and the actual values of them must be measured and documented regularly by the service provider. NHH has the right and obligation to survey these measurements and documents. Cyprus also requires information on specific parameters such as m2e delay, codec type, echo loss and packet loss based on VoIP calls terminated in Cyprus (Quality Framework for Voice Communication over Packetised Networks" document published by the Office of the Commissioner in April 2003)<sup>2</sup>.

### **Obligation to inform the customer about QoS limitations**

A few member states have imposed obligations to inform customers in relation to limitations relating to transmission delays, delay variations and packet losses. The Czech Republic requires information on the service provided, its guaranteed level of quality and the date when the service shall be commenced. As stated above, Hungary requires VoIP providers to inform customers about abnormal suspension of services, guaranteed upload and download speeds and on the bit fault ratio. In Cyprus, the measurements of specific parameters are submitted each month by licensed 'voice through IP' service providers and these are evaluated and compared with the minimum acceptable quality levels determined by the OCECPR. The results of the evaluation are published on its website every two months.

In Portugal, service providers which offer VoIP services at a fixed location and the providers of nomadic VoIP services with assigned numbering should adopt the provisions and recommendations set out in the determination "Minimum Content to be Included in contracts for publicly available telephone services (mobile or at a fixed

<sup>2</sup> [http://www.ocecpr.org.cy/media/documents/Reports/ElectronicCom/EC\\_Report\\_QualityFrame-VoiceComoverPNs\\_GR\\_13-04-2003\\_VI.pdf](http://www.ocecpr.org.cy/media/documents/Reports/ElectronicCom/EC_Report_QualityFrame-VoiceComoverPNs_GR_13-04-2003_VI.pdf)

location)<sup>3</sup> Provisions and recommendations set out in the determination “Minimum Content to be Included in contracts for Electronic Communications Services”<sup>4</sup> should be adopted by providers of nomadic VoIP services without assigned numbering.

In the scope of the determination on the object and form of public disclosure of the conditions of provision and use of electronic communication services<sup>5</sup>, it is further established that the service provider should provide information relative to the quality of service levels that should be addressed to consumers, i.e., the minimum levels of QoS agreed and whose violation might determine the payment of a compensation. The determination suggests some of the parameters that might be measured.

In Ireland, UK and Spain focus is laid upon differences of VoIP services with regard to traditional circuit-switched telephony. In Ireland, as a condition of number allocation for particular numbers relating to VoIP services, an undertaking is required to inform the consumer that there may be significant differences in service reliability and quality between the VoIP service and circuit switched public telephony networks. In the UK, a proposed code of practice would require providers to inform their customers about circumstances under which the service may cease to function (essentially a power cut or broadband failure). In Spain, VoIP providers also have to inform their customers about the manner in which the VoIP service differs from the public telephone service and any other restrictions. Finally, some member states also have a generic obligation to inform consumers about network quality. These include Belgium, Finland and Netherlands.

### **How information is made available**

In the majority of Member States, information is made available as a rule in the subscriber agreement for the provision of the service. These include Finland, Slovenia, Belgium, Hungary, Bulgaria, Austria and Sweden.

However, some member states require specific modes of publication. In Hungary the information must be published on the website of the VoIP service provider. In Cyprus the undertaking is obliged to provide information to the NRA every two months. This information is then published on the website of the NRA. In Italy QoS information must be published on the website of the VoIP service provider and periodically provided to the NRA. This information is then published on the website of the NRA. Other member states, such as Ireland and the UK, require the information to be made available during the sales process. Where UK providers meet certain criteria (in terms of relevant turnover and call minute thresholds) information must be published on an industry website ([www.topcomm.org.uk](http://www.topcomm.org.uk)). Finally, in Spain, the form in which the information is to be made available is left up to the discretion of the undertaking in question as long as this is done in a clear and intelligible way.

<sup>3</sup> <http://www.anacom.pt/template12.jsp?categoryId=162262#3>

<sup>4</sup> <http://www.anacom.pt/template12.jsp?categoryId=162262#3>

<sup>5</sup> <http://www.anacom.pt/template31.jsp?categoryId=191103>

## Cross-border issues

### Regulatory framework

VoIP services can be provided and used internationally. VoIP services can be offered via the Internet independently of a fixed connection to the PSTN, broadband or mobile networks. This makes it possible for the service provider and the user to be located in different parts of the world. The user can register and use the service at any access point in any country and can access the service when travelling abroad. The service provider can control the service from any point in the world and it is fairly easy to shift the service provision to another country.

This creates problems of jurisdiction: which NRA can issue regulation on a VoIP service provider and how can this regulation be enforced? If a common understanding on cross-border jurisdiction cannot be found, there is a risk of two or more NRAs claiming jurisdiction over the same matter or a matter might fall out of all NRAs' jurisdiction.

### Cross-border consumer complaints

The UK has experience with cross-border consumer complaints but these are currently at a low level. Norway has had one cross-border complaint from a consumer that tried to use a VoIP-service abroad where the local ISP barred the service.

The following 19 member states, have no experience related to cross-border consumer complaints: Czech Republic, Ireland, Finland, Hungary, Malta, Lithuania, Cyprus, Germany, Switzerland, Slovenia, Estonia, Italy, Denmark, Bulgaria, Austria, Sweden, Greece, Spain and the Netherlands.

### Problems concerning competence to enforce rules and regulations against VoIP services provision from another country

Fourteen member states – probably due to the lack of practical cases - have not identified any problems concerning enforcement of regulation against foreign providers.

The competence to enforce the Finnish legislation on services provided by Skype has been evaluated in Finland while in Switzerland there have been discussions - especially with Skype - about the registration as a provider of public voice telephony.

Norway, Germany, UK and Sweden have identified problems in theory. These member states state that the enforcement of rules against providers may be especially relevant in the case of VoIP but is also a problem for 'traditional' telephone and internet services. Carrying out enforcement against non resident/EU entities is a challenge and requires cross border cooperation between NRAs or other national administrations respectively.

### Legal position

Twelve member states (Czech Republic, Finland, Malta, Cyprus, Germany, UK, Switzerland, Italy, Slovenia, Denmark, Sweden, Netherlands and Norway) stated that the national legislation applies to the provision of electronic communication networks and services in the member state – including services offered by foreign providers.

## Annex – Questionnaire/Summary of Answers of the NRAs that participated in the report

### Introduction

As one of the major goals of the regulatory framework is to create benefits for European Customers, ERG is focussing on certain End User aspects. With the usage of VoIP increasing rapidly, ERG proposes to review the consumer aspects of provision of VoIP services.

Consequently, the End User WG wishes to carry out a consultation on certain aspects regarding VoIP. The questionnaire must be seen in relation with the Communications Committee's questionnaire on regulatory treatment of Voice over IP services. This questionnaire will however focus on information given to consumers.

There are several different types of VoIP services provided to the consumers. For this project, VoIP services are classified in the following categories<sup>6</sup>:

1. A service or VoIP software from which there is no access to or from the PSTN and where E.164 numbers are not provided to the customers.
2. A service where an outgoing only access to the PSTN is provided but not E.164 numbers.
3. A service where an incoming only access from the PSTN and an E.164 to the customer are provided.
4. A service in which an E.164 number and incoming and outgoing access to the PSTN is provided.

If VoIP services in your country are differentiated into two (or more) types/classes which mean different regulation, please kindly answer the questions referring to each type/class.

### General comments

#### *Malta*

VoIP services in Malta are in general differentiated in the following three categories. The first category includes those services, normally taking the form of VoIP software, which are not electronic communications services because they do not consist wholly or mainly in the conveyance of signals on electronic communications networks. These services do not offer access to or from the PSTN. The second category includes those services which constitute an electronic communications service because the service itself consists wholly or mainly in such conveyance of signals on electronic communications networks but do not qualify as Publicly Available Telephony Services (PATS). This would be the case if the service did not include national, international, incoming and outgoing calls. All VoIP services that provide access to the PSTN would fall within this category or the third category. The third category includes those services which are similarly electronic communications services are those in the second category but which qualify as PATS.

The first category is not regulated by the Malta Communications Authority (MCA). All the forthcoming answers apply to categories two and three.

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<sup>6</sup> The same classification is used in the COCOM 05-52 questionnaire

<i>Lithuania</i>	In accordance to paragraph 6 of the Description of General Terms and Conditions for Engaging in Electronic Communications Activities VoIP providers notified that their services substitute the fixed telephone communications and are regulated by the requirements applied to fixed telephone communications. In this Questionnaire we provide the answers about those who have not submitted notifications about provision of fixed telephone communications, just about VoIP technology.
<i>Cyprus</i>	For the time being VoIP services by providers in Cyprus are limited. We expect to increase in the near future.
<i>Germany</i>	The answers given below apply generally to categories 2-4. Depending on the individual case also category 1 services can be subject to regulation.
<i>Switzerland</i>	Service 1 is not regulated in Switzerland. Every operator offering one or several of the VoIP-services 2, 3 and 4 (as described above) is considered as a provider of public voice telephony.
<i>Slovenia</i>	Category nr. 1 is not regulated by the telecom legislation in Slovenia. All the forth coming answers apply to categories nr. 2, 3 and 4.
<i>Estonia</i>	ENCB answers to the questionnaire should be viewed together with our answers to the research of the Communications Committee (CoCom05-52). In Estonia only category 4 services are regulated as telephone services.
<i>Denmark</i>	Category nr. 1 is not regulated by the telecom legislation in Denmark. All the forth coming answers apply to categories nr. 2, 3 and 4.
<i>Austria</i>	<p>In October 2005 the Austrian Regulatory Authority for Broadcasting and Telecommunications (RTR) issued "Guidelines for Providers of VoIP Services" (in German only) aiming to provide regulatory clarity to providers offering public VoIP services in Austria. One of the fundamental conclusions of that guidelines document is the definition of 2 distinct classes of VoIP services.</p> <p>Class A VoIP Services: Publicly offered VoIP services providing access to and/or from the Public Switched Telephone Network (PSTN) are defined as being a Publicly Available Telephone Service (PATS) and an Electronic Communication Service (ECS)</p> <p>Class B VoIP Services: Publicly offered VoIP Services for voice communication between Internet users without providing access to the PSTN are defined as being neither PATS nor ECS</p> <p>Therefore, service types 2, 3 and 4 from the COCOM definition are classified as PATS and ECS, while service type 1 is neither PATS nor ECS. Providers of service type 1 therefore remain unregulated regarding Austrian telecommunications law.</p> <p>The answers to the following questions to a large extent apply to VoIP services falling into the Class A category as defined above; Class B services remain largely unregulated with regard to the Austrian Telecommunications Act.</p>
<i>Greece</i>	<p>Currently, there is only one Emergency Center administered by the General Secretary for Civil Protection of the Ministry of Interior, Public Administration &amp; Decentralization. This Center is maintained and operated by the OTE (the Greek Incumbent operator).</p> <p>Calls to the single European Emergency Call number (112) are routed to the aforementioned center but the automatic location information retrieval</p>

has not been implemented yet. The General Secretary for Civil Protection, in coordination with EETT are currently discussing with Mobile and Fixed Operators regarding the location information retrieval issues.

*Netherlands*

Because of the definition in the Dutch Telecommunication Law, at this moment only 4 is regulated. There is a discussion going on, on the need to change the definition, so that also 2 and 3 will be regulated

*Norway*

We have so far concluded that category 4 and category 2 and 3 used in combination are regulated as a public telephone service. As for category 1 and category 2 and 3 (used separately) we will come to a conclusion soon. Category 2 and 3 used separately fall within the scope of the Electronic Communications Act. If available to the public, these services are deemed as publicly available electronic communication service. NPT has not yet reached a general conclusion for category 1. Each category 1 VoIP service has to be assessed individually in order to decide whether the service is to be deemed as electronic communications service or not.

*Czech Republic*

The category (1) of VoIP is not classified as electronic communication service (ECS) and is out of scope of regulation.

The category (2) and (3) is classified as ECS – on such services are applied softer regulation then on public available telephone service (PATS).

*Italy*

The category (4) is classified as ECS or PATS with stronger regulation.

If the service can be configured as Skype OUT (no E.164 numbers right of use are required) the subject who provides the service to the public has to require an ECS general authorization.

In this case a "Best effort" access to emergency services has to be provided by the operator.

In the case the service can be configured as both Skype IN and Skype OUT there are two possibilities.

a) the operator assigns geographical numbers (code 0) to users: a PATS authorization is required to get from the Ministry the rights of use of these numbers

b) the operator assigns non geographical numbers to users (a specific code 55 has been introduced for nomadic VoIP services): an ECS general authorization is required to get from the Ministry the right of use of these numbers.

In each case ( a) and b ) the operator has to provide: number portability, access to emergency services, lawful interception.

*Portugal*

By determination of 23 February 2006 (<http://www.anacom.pt/template12.jsp?categoryId=192902>), approval was given to the report on the public consultation launched following the determination of 4 November 2005, on the regulatory approach to voice services using IP technology (VoIP).

It was also determined, under the terms of article 17, no. 2, paragraph b) of the Electronic Communications Law (Law no. 5/2004 of 10 February), the opening of the numbering range "30" to accommodate the provision of nomadic VoIP services, and the allocation of 10,000 numbers to the providers that are entitled to provide nomadic VoIP services, under the terms defined by ANACOM. The "30" range was included in the scope of portability, considering the terms of paragraph g) of no. 1 of article 3 of the Portability Regulation.



It was also decided, further to the joint terms of paragraph j) of no. 1 and of n. 2, of article 27 of Law no. 5/2004 of 10 February that the providers of nomadic VoIP services with numbers of the National Numbering Plan, when on national territory, must assure the routing of VoIP calls to 112.

### *France*<sup>7</sup>

In France, ARCEP distinguishes two types of VoIP services :

1. A service or VoIP software from which there is no access to or from the PSTN and where E.164 numbers are not provided to the customers (classe 1 in the classification above).
2. A service in which incoming or outgoing access to the PSTN is provided; with or without a E.164 numbers (classes 2, 3 and 4 together in the classification above).

There are no legal obligations for the first type of service in France and the obligations for the second type of services are the same than those for traditional PSTN services.

## **Emergency services**

1. The End User WG wishes to collect information on the different National systems adopted for handling Emergency calls.

a) Could you give a brief outline (technical) of the National system adopted for handling Emergency calls (eg. one or several emergency centers)?

*Czech republic* Calls to the public emergency service (112 or national numbers – 150, 155, 158) from the connected end users are routed to one of regional centers. In Czech republic we have approximately 7 of these centers.

*Ireland* All calls to the emergency service number 112 and national number 999 are received by the Public Safety Answering Point (PSAP) currently provided by eircom. Calls are then forwarded to the relevant emergency service control room. The Minister for Communications, Marine and Natural Resources has published draft legislation which would place the PSAP on a statutory footing and to be operated by a private entity and paid for by the telecommunications industry.

*Finland* A nationwide renewal of Emergency Response Centres has been recently implemented in Finland. The rescue services' municipal emergency response centres and the police force's emergency call centres, which used to function as separate units, have been combined within a single state-run ERC structure by 2006.

The Emergency Response Centre Administration consists of an administrative unit and 15 regional ERCs throughout Finland. Emergency calls are routed directly to the appropriate regional ERC based on the location of the caller. ERCs receive around 0.8 calls/inhabitant, amounting to around four million emergency calls per year.

*Hungary* In Hungary there are four emergency numbers, as 112 (General emergency), 104 (Ambulance), 105 (Fire brigade), 107 (Police)  
In case of the 112 emergency number, the 20 emergency centers (PSAPs) were implemented in the police stations of the 19 county towns, and 1 in Budapest Police Headquarter. The Ambulance service is under the direction of Ministry of Health, the Fire brigades under the direction of local municipalities by legal supervision of State Disaster Management, the police and other rescue organizations are under the direction of Ministry of Interiors, therefore their organizations are different and geographically distributed.  
The telephony service licence holders (PATS services, including VoIP PATS ser-

<sup>7</sup> The French data listed in this Annex are not integrated into the report.



vices) are obliged to implement the emergency numbers in their networks and the calls are free of charge for the callers. No SIM cards are necessary to initiate emergency calls from mobile terminal and no calling cards nor coins are necessary in public phones.

For the location independent VoIP service there is no regulation yet.

- Malta** There is only one emergency centre in Malta. Calls to the public emergency service (including 112, 199, 191, 196) are routed to the main emergency centre. This centre is currently managed by the Malta Police Force which is responsible for transferring the call to the appropriate destination including the Police (Crime and Community Matters), the Civil Protection (Land Rescue), the Armed Forces of Malta (Sea Rescue) and the Health Department (Ambulance Services).
- Lithuania** Lithuanian Emergency Response Centre (ERC), serving in Vilnius City and bordering parts of Vilnius District (~16 percent of the population of Lithuania), has an access to location information for fixed line network of AB "Lietuvos telekomas" (more than 97 % market share of calls from the fixed network in 2005 in Lithuania). The location information from this network is received neither through "push", nor through "pull" technology. ERC in its servers possess a permanently updated database of customers of AB "Lietuvos telekomas". In case of 112 (or other emergency numbers) call CLI comes with a call and according to CLI location and name of the owner is taken out from the database and displayed on the screen (location is also displayed graphically in digital map). Currently it is technically feasible for ERC to receive and process location data from mobile (GSM) networks. For mobile network "pull" technology is used. Recently ERC signed a location data provision agreement with one of VoIP services providers UAB "Mediafon". The technical principle of data provision is analogous to one of fixed line network.
- Cyprus** The Republic of Cyprus has implemented the European emergency call number "112" and operates in parallel with "199". 22.16% of calls are routed to "112" and 77.84% of calls are routed to "199". This is due to the fact that "199" has been in operation for far more years than "112" and is broadly memorized by the citizens of the republic. Calls to the "112" Emergency Phone Number are diverted to the appropriate Police Department for further action (if and where is needed) or in the case that only information is needed the call is handled by one of the operators of "112". Call Centers are able to use both, the Greek and English Languages.
- Germany** In Germany all providers of PATS must ensure that their users can call the public emergency services free of charge. Public emergency services are provided by the police - nationwide available under the short telephone number 110 - and by rescue services like fire-fighting or ambulance - nationwide available under the short telephone number 112.
- Altogether the public emergency services run several hundred Emergency Response Centres serving as Emergency Call Answering Points (PSAP) and organising relief operations. The Emergency Response Centres are connected to the fixed telephony network by ordinary ISDN or analogue access lines, however with special features like automatic fault detection and alarm. The Emergency Response Centres are operated and equipped either by the police or by a rescue service. Leased Lines are frequent between adjacent Emergency Response Centres in order, for instance, to be able to forward a call to the police (110) in case the harmonized emergency number 112 has been dialled.
- The Emergency Response Centre responsible to serve a caller is determined by the ISDN exchange or the GSM Base Station providing network access to the caller. When a caller dials an emergency telephone number the short number is translated into a special routing number used to route the call through all concerned networks

to the destination Emergency Response Centre.  
Together with the emergency call the Calling Party Number is provided to the Emergency Response Centre even if the caller has activated CLIR.

If today the Emergency Response Centre has to determine the whereabouts of the caller it uses a reverse telephone number directory in case of an emergency call from the PSTN/ISDN or contacts the GSM network operator to obtain the cell ID in case of an emergency call from a GSM terminal.

#### *UK*

All emergency calls are received by a level one Public Safety Answering Point (PSAP) and this service is provided by British Telecommunications, Cable & Wireless, Kingston Communications and Global Crossing. Other telecommunications companies have contracts with British Telecommunications and Cable & Wireless for handling calls. Calls are then forwarded to the appropriate emergency service control room.

#### *Switzerland*

There is no national emergency centre. Every of the 26 Swiss Canton's (State) is responsible to organize its own emergency system. Some Cantons have several emergency bodies (e.g. geographic segmentation); so in fact there are more than 26 centres put in place.

The following numbers are in use for emergencies:

112 European emergency number  
117 Police  
118 Fire service  
143 Samaritans  
144 Ambulance  
147 Helpline for children and young people.

Access to these emergency numbers must be provided from every telephone line (PSTN, ISDN, VoIP, mobile telephones, public telephones, etc.). It must be possible to make an

emergency call to the police, fire brigade and ambulance service from public telephones free of charge and without any means of payment (cash, phone card, credit card, etc.).

Every provider has to ensure that calls to public emergency services are routed to the USO provider's electronic communications network. The USO provider is obliged to inform the responsible emergency centre to which the calling end-user is assigned. The USP has also to hand over the name, address and number of the calling end-user to the emergency centre.

After July 2006 it is planned to integrate a pop-up, which is showing the emergency officer that the consumer is using VoIP-services. So the officer is reminded to ask about the location.

For further details:

<http://www.bakom.admin.ch/org/grundlagen/00563/00564/00658/index.html?lang=en>

#### *Slovenia*

Providers of voice telephony services shall ensure that calls to the public emergency service (112) from the connected end-users are terminated forthwith in the USO provider's electronic communications network. Every provider shall ensure that the call is routed forthwith to one of the 2 state emergency centers and from there into approximately 12 regional centers.

#### *Belgium*

Belgium has from a regulatory point of view, two types of emergency services :

1. Those sending assistance on the spot :
  - a. Urgent medical assistance 100, 112
  - b. Fire Brigade 100, 112

- c. Urgent police assistance 101, 112  
These services need caller location data to be able to respond.  
These departments are government organisations and have emergency call handling centers organised by province (11 centers in total)
- 2. Those giving assistance by phone :
  - a. Anti-poisening center 078 245 245
  - b. Children's Phone 102 (dutch), 103 (french)
  - c. Mental and moral counselling 106 (dutch), 107 (french), 108 (german)
  - d. Center for sexually abused or exploited children 110
  - e. Suicide prevention center 02 649 95 55 (dutch), 0800 32 123 (french)

The responsibility of the internal organisation of the emergency call handling centers of these organisations is left to the discretion of these organisations. Some have only one national call handling center, others have several and yet others have one call center per province (NOT co-located with "100" or "101"-centers !)

These departments receive calling line identification if they comply with certain government defined rules. If they detect a situation which requires assistance on the spot, they can transfer CLI to the departments handling "100" or "101" call ("112").

*Estonia* Rescue Board is responsible for handling Emergency calls in Estonia. The Estonian Rescue Board is an autonomous governmental institution within the Ministry of Internal Affairs. The Rescue Board is responsible for inland fire and rescue services in Estonia. In general, operational services are organized at county level and the Rescue Board has administrative duties, but there are also some operational units directly under The Rescue Board's control.

There are 4 main emergency centers (Western-, Eastern-, Southern-, and Northern-Estonia plus 3 separate regions, but in the near future they are planned to integrate). There is no obligation to route the emergency calls to the nearest centre but in practice routing is correctly functioning.

*Denmark* Providers of voice telephony services shall ensure that calls to the public emergency service (112) from the connected end-users are terminated forthwith in the USO provider's electronic communications network. The USO provider shall ensure that the call is routed forthwith to one of 8 emergency centres under which the end-user in question belongs, or that the call is routed according to a specific agreement between the emergency authorities and the USO provider.

Soon new legislation will come into force in Denmark that obliges, the Danish USO provider (TDC) and providers of public voice telephony services (also VoIP) to make agreements with the emergency authorities on how location information in the future shall be available for the emergency authorities.

*Bulgaria* The arrangement of the National system for emergency number 112 in Bulgaria is still under discussion.

*Austria* There are several service centers for each type of emergency service, sometimes also throughout federal states. Calls to 112 are always routed to the police.

*Sweden* SOS Alarm is receiving calls for all Emergency Response Organisations. Maritime Rescue can also be reached directly by radio but the majority of such alarms are received via 112. The Swedish model means that a person in an emergency situation should not need to make more than one emergency call to reach all relevant help resources. The same interview should be used through the emergency response chain. Concerning local ambulance and rescue services the same opera-

tor normally can handle the complete chain. In case of police and national governmental rescue services the calls are forwarded with "joint listening" if there is a need for coordinated action.

In Sweden there are 18 PSAPs spread over the country. Calls are received to the different PSAPs depending of the location of the caller. The PSAP in a region receives all types of calls i.e. there is no differentiation between e.g. fixed or mobile calls.

If a call is made from a mobile phone close to a border and it is received by a PSAP in the wrong country there are no standardized procedures for sending the call back. With the local PSAPs in Finland, Norway and Denmark there are regional and local alarm plans and agreed routines in use. Still there are problems due to the fact that telecommunication do not follow the borders, especially not in the sparsely populated areas in the north of Sweden. There is a need for further discussion within the Expert Group on how these problems could be treated.

In Sweden all Emergency Response Organisation are reached through 112. These are

- Ambulance
- Air ambulance
- Poison information
- Police
- Rescue/ Fire brigade
- Coastal guard/ Environment rescue
- Customs (drugs smuggling information)
- Mountain rescue
- Physician, Nurse or Midwife on call
- Priest on call
- Veterinary on call
- Dentist on call
- Maritime environment rescue
- Maritime rescue
- Social worker on call
- Rescue service in case of radioactive discharge

<i>Greece</i>	<p>Currently, there is only one Emergency Center administered by the General Secretary for Civil Protection of the Ministry of Interior, Public Administration &amp; Decentralization. This Center is maintained and operated by the OTE (the Greek Incumbent operator).</p> <p>Calls to the single European Emergency Call number (112) are routed to the aforementioned center but the automatic location information retrieval has not been implemented yet. The General Secretary for Civil Protection, in coordination with EETT are currently discussing with Mobile and Fixed Operators regarding the location information retrieval issues.</p>
<i>Spain</i>	<p>The operators have to route the call to the 112 to the corresponding call centre. Each call centre covers a specific geographic area; there is one 112 call centre per province. The operators have to ensure that caller location information is available to the emergency services.</p>
<i>Netherlands</i>	<p>Providers of voice telephony services shall ensure that calls to the public emergency service (112) from the connected end-users are terminated forthwith in the USO provider's electronic communications network. The USO provider shall ensure that the call is routed forthwith to one of the emergency centres under which the end-user in question belongs, or (in the case of mobile) that the call is routed according to a specific agreement between the emergency authorities and the USO provider.</p>

Provision of location information is compulsory, but the technicalities are not within OPTA's competence.

- Norway* Norway has 3 emergency numbers (fire, police, ambulance) and approximately 90 call centers (as of 2004) spread all over the country. Routing is based on geographical numbers or postal address.
- Portugal* There are around 30 emergency centers where all calls to 112 are delivered by the Universal Service Provider (Portugal Telecom – PT). PT collects calls originated at other operator's network, at a Geographic Interconnection Point (GIP) of each geographic numbering area (there are presently 52), and routes the call to the appropriate emergency center with the format 1122xy, where "xy" is the code for the numbering area of the origin of the call, with the exception of Lisbon and Porto where 2xy takes the values 210 and 220, respectively; when the operator where the call to 112 is originated is not connected to the referred GIP, it delivers traffic to PT at the national GPI of Lisbon or Porto.
- Italy* There are more national emergency number(s) in addition to 112 for police (113), fire (115), or ambulance (118). In the case of a call from a fixed telephone, routing is based on the address associated to the caller's Network Termination.
- France* For the first type of services, no emergency calls can be made. Answers below (see Footnote 7) concern the second type of services.

In France, the system to handle emergency calls varies with the emergency numbers and the type of number of the caller.

Calls made from a geographic number are automatically sent to the closest emergency center to the caller location (fire station by dialling "18", police station by dialling "17", medical emergency services by dialling "15", European number "112" for police, fire station and medical emergency services). The number is provided to the center, along with the name and address of the caller (depending on his operator).

For the calls made from a fixed non geographic number, there is no harmonized system between the operators. But if the number is linked to an address of the subscriber, the call may be delivered to an emergency center close to this address.

Calls made from a mobile number are automatically sent to the closest emergency center to the Base Station of the caller. At least the number is provided to the center.

2. The End User WG wishes to assess the restrictions of access to Emergency services from VoIP services and the information available to the consumers concerning the possible restrictions.

a) If access to Emergency services is not available or restricted, are VoIP Providers obliged to inform their customers about the lack of availability or the restrictions?

- Czech republic* Providers of VoIP services must provide access to emergency calls, this is given by the law. If consumers use nomad VoIP, providers shall inform their consumers that emergency calls aren't accessible.
- Ireland* Yes, according to ComReg document 04/103 (VoIP Services in Ireland), Section 4.1.2, Decision No.2 d, numbers will be allocated to ECS service providers on the condition that, inter alia, they must undertake reasonable efforts to ensure delivery of "112" and "999" calls to the emergency services and users must be advised of any limitations. Furthermore, Decision No.2 e) states that they

(ECS service providers) must at least advise consumers in their contracts of any other limitations of their service (including delivery of calls to the emergency services) vis-à-vis what those customers might legitimately expect compared with what would traditionally be expected from a PATS service.

In addition, ComReg's published Guidelines for VoIP Service Providers on the treatment of Consumers (ComReg 05/50) state that:

- SPs offering PATS services are obliged to ensure uninterrupted access to emergency services and also to ensure that end-users are able to call the emergency services (on both 112 and 999) free of charge.
- SPs categorised as ECS but not PATS may choose to offer or not to offer access to emergency service calls, but ComReg considers that access to these calls should be facilitated where at all possible.
- Where access is offered by ECS, the reliability of this access may be affected by circumstances beyond the control of the SP, in particular by power failure or by failure of the packet data network.
- VoIP SPs should provide their customers with relevant information that enables them to understand the implications of using an ECS Voice over Data service.
- End-users of both PATS and ECS services should be clearly informed that nomadic use of their VoIP service may not influence where a call to the emergency services is directed, i.e. the call will most likely be directed to their "home" emergency services, rather than to the emergency services appropriate to their current location.
- When providing information to customers about emergency access numbers, SPs should refer to the European harmonised '112' emergency code as well as the original '999' code.
- Where the service does not provide access to '999' and '112', clear information to this effect must be provided to all potential users of the service at the point of sale; in any user guide issued by the SP and the SP should supply stickers clearly indicating that calls to emergency services cannot be made from handsets connected to the service.
- Where the service does not provide access to '999' and '112', if the emergency numbers are dialled, the SP shall provide a network announcement, stating, "Calls to Emergency Services cannot be made from this handset, please hang up and redial from an alternative network".
- Where the service does provide access to '112' and '999' but does not offer substantially the same level of reliability as circuit switched public telephony, clear information to this effect must be provided to all potential users of the service in any user guide issued by the SP. The same information should also be included in materials describing the service that are made available to prospective customers in advance of the point of sale.
- SPs should encourage customers to register their current address information with the SP so that this information may be passed to the emergency services where appropriate and necessary. This should be done in compliance with all existing Data Protection legislation.

ComReg encourages SPs to encourage this registration for all types of voice services offered, including those that are pre-paid as well as those services that are post-paid.

<i>Finland</i>	<p>Access to Emergency services has to be available in all (ECS or PATS) VoIP-services from which there is out-going access to the telephone network (classes 2 and 4 above). There might, however, be restrictions in routing the call or providing the location of the caller to the ERC. In other VoIP-services (eg. classes 1 or 3) emergency services might not be available.</p> <p>Operators are in general obliged to specify in the agreement the nature of the service provided as well as restrictions to the service. The operators are also specifically obliged by FICORA's regulation (<a href="http://www.ficora.fi/englanti/document/Regulation33B2005M.pdf">http://www.ficora.fi/englanti/document/Regulation33B2005M.pdf</a>) to inform their customers of possible service-related restrictions concerning the requirements for emergency access.</p>
<i>Hungary</i>	<p>The questions of VoIP are not regulated specifically yet, therefore it is not prescribed for the VoIP providers to inform their customers about the lack of availability or the restrictions in access to emergency services. But the general principle for all telecom services is that all fundamental questions and characteristics regarding the provision of services must be involved into the contract with the subscriber and/or in the General Terms and Conditions of Contract (GTCC) at least, which must be made available for the customer.</p>
<i>Malta</i>	<p>Currently there is no obligation for VoIP providers to provide access to emergency service unless these qualify as PATS. The MCA encourages VoIP providers that do not qualify as PATS to inform customers about the lack of availability or restrictions of access to emergency services.</p>
<i>Lithuania</i>	No
<i>Cyprus</i>	N/A. VoIP numbering not implemented yet.
<i>Germany</i>	<p>With regard to VoIP some service providers are able to route emergency calls to the responsible Emergency Response Centres whilst others are not. Likewise, some VoIP providers are able to provide the Emergency Response Centres with the Calling Party Number for callback and even location information on demand whilst others are not. There is a general obligation for providers of ECS to inform their customers about the conditions of use (sec. 27 para. 1 Telecommunications Customer Protection Ordinance). Following the different technical feasibilities, the operators do inform consumers differently. The information ranges from the indication that the use of emergency services is impossible at the moment to the indication that emergency services can be used although with some restrictions. In the first case, it is recommended to use the PSTN/ISDN or a mobile telephone in case of emergency. In the latter case, the address given by the consumer is taken as the essential data forwarded to the Emergency Response Center. Consumers are told to tell name and present location in the case of emergency.</p>
<i>UK</i>	Yes
<i>Switzerland</i>	<p>In general all operators of public voice telephony have to offer emergency services. If access is limited or not available the operator has to inform the customer.</p>
<i>Slovenia</i>	<p>Operators of electronic communications networks connected to public electronic communications networks or services, and providers of voice teleph-</p>

only services that do not exclusively give access to making international calls, shall ensure that all end-users connected to the network or the service and who use a voice telephony service in this connection can make calls free of charge to the public emergency service (112).

There is the obligation for operators (other than USO) to provide the caller location data if this service is technically feasible. If a provider of public voice telephony services (also VoIP) does not provide location information it is obliged to inform its end users about this fact. This is the obligation deriving from the decision of the NRA on behalf of which the operator gets the right to using numbering space.

*Belgium  
Estonia*

Yes

In case of the 4<sup>th</sup> category no restrictions are allowed. In other cases it is a good practice to inform the end users but it is not an obligation. Raising the awareness of the end user and competition on the market are pushing the VoIP undertakings to fulfill the obligations.

*Denmark*

Owners of electronic communications networks connected to public electronic communications networks or services, and providers of voice telephony services that do not exclusively give access to making international calls, shall ensure that all end-users connected to the network or the service and who use a voice telephony service in this connection can make calls free of charge to the public emergency service (112).

Owners of electronic communications networks connected to public electronic communications networks or services are not obliged to comply with the requirements described in subsection (1) in those cases where another provider provides the voice telephony service.

Owners of electronic communications networks that are not connected to public electronic communications networks or services are not obliged to inform their customers about the lack of availability or the restrictions but in the coming legislation these owners will get obliged to inform their customers about the lack of availability or the restrictions of access to emergency calls.

*Bulgaria  
Austria*

N/A

If a VoIP service has to be classified as PATS, the PATS regulations (including the provision of access to emergency services) apply. However, the Austrian regulations with regard to the provision of access to emergency services mandate that technical and economic considerations have to be taken into account (e.g. with respect to routing).

*Sweden*

There is today no strict obligation for the VoIP-provider to inform their customer about the lack of availability or the restriction. However the NRA is planning to make a recommendation about what the VoIP provider should inform the customer about (which will include the possibility to call 112). The NRA is also looking into the possibility to have mandatory parameters which the operator must have information about.

*Greece*

No specific regulation exists at this point. The issue will be addressed after the public consultation. According to the Greek legislation, all Publicly Available Telephone Service Providers, independent of the technology being used, must provide access to Emergency Services free of charge.

*Spain*

VoIP providers have to provide access to the 112 call centre corresponding



to the customer's domicile set in the contract. The providers have to inform about this restriction.

<i>Netherlands</i>	If a service is a public voice telephony service, the availability of emergency access is compulsory. If the service is not a public voice telephony service, emergency access is not compulsory. In that case there is no obligation to warn the customer.
<i>Norway</i>	Yes. We have given exemptions from the requirement to transfer location information for nomadic services. A prerequisite for the exemption is that customers are informed about this insufficiency.
<i>Portugal</i>	<ul style="list-style-type: none"> <li>• VoIP providers with E.164 numbering rights of use allocated (either geographic or nomadic) are obliged to route the calls to 112.</li> <li>• VoIP providers without E.164 numbering, may do it (but they are not obliged to). If they don't offer the access to the emergency services they must inform the customer about the existent constraints, within the scope of the contract and of the offer conditions of the service.</li> </ul>
<i>Italy</i>	If access to Emergency services is provided to nomadic users VoIP Providers are obliged to inform their customers about the limited localization possibilities.
<i>France</i> (see Footnote 7)	It is not possible to not provide or restrict access to emergency services for any telephone provider, including VoIP providers.

b) If so, how is this information made available?

<i>Czech republic</i>	Providers of nomad VoIP send a message to the telephone display.
<i>Ireland</i>	See answer to previous question.
<i>Finland</i>	There is no unified form provided to make the information available, but it is usually available in service descriptions, terms of agreement and in operator's the webpages and/or the starting page of the service.
<i>Hungary</i>	The GTCC – covering all public services provided by the service provider – must be presented to the NCAH and must be made available by the service provider (on homepage and physically in the clientele offices). The NCAH publishes all received GCCs in its homepage to inform the public.
<i>Malta</i>	Information must be brought to the attention of the customer in an unequivocal fashion and must be included in the terms and conditions of the contract. In the case where inline powering and battery back up is not provided a notice must be displayed on the modem stating that in the case of power failure access to emergency services will not be available.
<i>Cyprus</i>	No specific numbering for VoIP services has been assigned. Issue is under study by OCECPR.
<i>Germany</i>	Via WWW, brochures etc.
<i>UK</i>	Ofcom is currently consulting on a draft code of practice which would require providers to make information available in terms and conditions, at point of sale and at point of use (through use of labels, network announcements and number unavailable tones).
<i>Switzerland</i>	<p>To draw the user's attention about the risk of nomadic use in a case of an emergency the operator has to respect three conditions to complete the contract with its customer:</p> <ul style="list-style-type: none"> <li>• The operator has to inform about the risks of nomadic use.</li> </ul>

- The provider must recommend to the consumer to use - if possible - other ways of communication than VoIP-services in case of an emergency.
- The user has to testify by signature that he is aware about the risks of nomadic use.

<i>Slovenia</i>	The information will be available in the contract or in operator's General Conditions.
<i>Belgium</i>	Through the general provisions in the contract of the user and (at least) three times a year (generally through the bill sent to the user).
<i>Denmark</i>	The information will be available in the contract.
<i>Bulgaria</i>	N/A
<i>Austria</i>	Not applicable (see answer above)
<i>Sweden</i>	No information yet
<i>Spain</i>	In the contract
<i>Norway</i>	Information about restrictions should be given when marketing the VoIP service. If the product was bought before this obligation came into force, the VoIP provider should inform the customer individually.
<i>Portugal</i>	The information related to access restrictions to emergency services should be transmitted to users before the celebration of the contract through a document which should be made available separately from the remaining information. Whenever providers of nomadic VoIP with no assigned numbering do not guarantee the routing of calls to emergency service, the document must include such disclaimer. Also it can be available through the publication of the service offer conditions.
<i>Italy</i>	In the contract.

d) Are possible restrictions of Emergency services coordinated and permitted by NRA or National Emergency Agency?

<i>Czech republic</i>	We haven't any restrictions.
<i>Ireland</i>	No answer
<i>Finland</i>	There is no official procedure for permitting deviations from the regulations, but Ficora acknowledges that there are (for the time being) restrictions in the access to emergency services concerning routing of the VoIP call, provision of the caller's location information and call-back functionalities. The ERC's are also made aware of the possible restrictions relating to VoIP-services.
<i>Hungary</i>	No
<i>Malta</i>	With regard to the Interrupted access to emergency services, this obligation is deemed to be satisfied if a battery pack is provided with the modem or if a notice is displayed on the modem stating that in the case of power failure access to emergency services will not be available. Apart from this all PATS operators are to provide full access to emergency services.
<i>Lithuania</i>	No
<i>Cyprus</i>	The use of number "112" is regulated through the Legislation and the decisions of Commissioner of Electronic Communications and Postal

Regulation. Further to the provisions of Law 112(I)/2004, the number “112” and the criteria for using the number, are defined in the Numbering plan of the Republic of Cyprus, which is annexed in the Numbering Order (ΚΔΠ 850/2004) of the Commissioner. The terms and the obligations of the operators for the provision of “ 112 ” services are stated in the Decision of Commissioner regarding the Terms and Obligations of persons (natural and legal) that they activate in the field of electronic communications under the framework of General Authorizations. The issues regarding access and facilitations to the alternative operators are covered in the Reference Interconnection Offer.

A committee of competent public authorities (Ministry of Justice, MCW, Police, OCECPR) are considering further development (see below), of 112 issues in Cyprus. Upon others the committee is considering the following issues:

- a) Evaluation of the current situation.
- b) Development of an automatic “Public Safety Answering Point (PSAP)”.
- c) Evaluation regarding the languages the service can be offered (currently its being offered in Greek and English languages).
- d) Awareness of the Cypriot citizens
- e) Possible improvements regarding the “Caller location service”
- f) Exchange and distribution of information between the competent authorities on public safety
- g) Obligations of the operators that provide public access to the 112 emergency services.

#### *Germany*

In Germany there is no National Emergency Agency. In case of the police each federal state (Bundesland) and in case of rescue services each town or administrative area (Landkreis) determines the accessibility, the served area and the configuration of their Emergency Response Centres as well as the organisation and location of their resources. An Emergency Response Centre is in principle accessible to emergency call originating in its area of responsibility only. At times of low emergency call likelihood the traffic of several adjacent Emergency Response Centres may be concentrated on one Emergency Response Centre. In any case answering calls for 110 and 112 by a close-by Emergency Response Centre must be ensured 24 hours/day and 7 days/week.

BNetzA is to provide guidance to network operators and service providers with regard to all aspects of supporting emergency calls, routing emergency calls to the appropriate Emergency Response Centre and providing all necessary telecommunications-specific information to the destination Emergency Response Centre. In this respect BNetzA is the interface between the emergency services and the telecommunications world. Finally, BNetzA is to check the compliance of network operators and service providers with BNetzA's rules and regulations concerning all aspects of supporting emergency calls.

With regard to VoIP some service providers are able to route emergency calls to the responsible Emergency Response Centres whilst others are not. Likewise, some VoIP providers are able to provide the Emergency Response Centres with the Calling Party Number for callback and even location information on demand whilst others are not. An amendment to the German Telecommunications Act is in the legislative procedure determining the obligations of innovative (VoIP) service providers and network operators as well as the time allowed to comply with these obligations.

#### *UK*

Yes, through general conditions of entitlement which provide obligations

	on operators dependent on service profile.
<i>Switzerland</i>	Restrictions are coordinated by the NRA. From the 1st July 2006 all VoIP-operators have to respect and fulfil completely all the conditions described above.
<i>Slovenia</i>	Look above
<i>Belgium</i>	Restrictions follow from the incapacity of operators to provide location information ; if an operator is PATS, he provides access to emergency services and if this is the case, the provision of caller location data is mandatory ; the same goes for an ECS who provides access to emergency services.
<i>Estonia</i>	In general there is no coordination procedure but if necessary this can be done by contact-persons between rescue center and ENCB.
<i>Denmark</i>	By NRA
<i>Bulgaria</i>	n/a
<i>Austria</i>	Not applicable (see answer above)
<i>Sweden</i>	Not to our knowledge
<i>Greece</i>	National Emergency Agency will be responsible for the implementation issues, while EETT (the NRA) will be responsible for compliance issues (under the authorization scheme).
<i>Spain</i>	Yes, by the Ministry of Industry, Trade and Tourism.
<i>Netherlands</i>	Not by the NRA. We don't exactly know about the authority of the National Emergency Agency.
<i>Norway</i>	Possible restrictions are permitted by NRA, but we are working together with the different Emergency Agencies and the VoIP providers in order to find good technical solutions for VoIP services.
<i>France</i> (see Footnote 7)	No.

#### Other comments regarding emergency services

<i>Finland</i>	FICORA has not so far received any complaints from end users relating to access to emergency services from VoIP.
<i>Hungary</i>	No significant problem has been received in customer complaints regarding the usage of emergency services.
<i>Austria</i>	No significant problems occurred, yet.
<i>Sweden</i>	<p>There are no specific solutions for VoIP yet but nomadic VoIP calls will be routed using new municipality codes if place of origination is not known by the network. With the marking of these calls the staff at the PSAPs can be more vigilant when doing the interview to ascertain where the caller is. (This is already a problem with net grouped PBX'es and certainly for IP PBX'es.)</p> <p>A work has been started by the PSAP (SOS Alarm AB) to define a migration path to a long term solution for IP focusing on the following</p> <ol style="list-style-type: none"> <li>1. IP-interconnect to PSAPs – Network structure, redundancy etc.</li> <li>2. Information to be transferred over this IP-interconnect, probably in SIP</li> <li>3. Security arrangements to prevent attacks etcetera.</li> <li>4. Means of dealing with nomadic VoIP concerning <ol style="list-style-type: none"> <li>a) Routing</li> <li>b) Finding location</li> </ol> </li> </ol>
<i>Norway</i>	We have experienced some problems with routing VoIP emergency calls to correct PSAP. Many VoIP providers do not transfer their customers registered address because they are waiting for a standard data-format.

*Portugal* The nomadic problem is yet to be solved.  
NRA is accomplishing the way market and industry deals with those restrictions (such as localization and power supply), without coordination for now.

*Italy* No answer

### **Number portability**

The End User WG wishes to assess the availability of number portability in VoIP services and the consumer information concerning the possible restrictions.

a) Can a user select the type of number (geographic or non-geographic) for the VoIP service?

*Czech republic* If VoIP is public available telephone service (PATS), end users have geographic numbers. If VoIP is non public available telephone service (non PATS) or nomad VoIP, end users have non-geographic numbers.

*Finland* Yes, the user can choose a geographic or a non-geographic number for the VoIP service (depending of course on the service provider). Mobile numbers are available only for those VoIP-services offered in mobile networks.

*Hungary* The user can choose service type from the offered ones of the provider (i.e. from PATS types and/or from location independent type services), and not the number type. The number type is fixed to the service type as written in our general remark to this questionnaire.

*Malta* Malta has a non-geographic numbering plan and currently the matter of selection does not arise

*Lithuania* All numbers are available for out of the state providers, who have the right to engage in the provision of the public fixed telephone network and/or the provision of public fixed telephone services in Lithuania.

*Cyprus* No specific numbering for VoIP services has been assigned. Issue is under study by OCECPR

*Germany* Non-geographic numbers can be used for VoIP services (especially the German 032 "National Subscriber Numbers"). If geographic numbers are to be used, it is necessary that the geographic reference contained in a geographic number remains. This means a geographic number can only be used for VoIP services if the person or the company who wants to get or use a geographic number for a VoIP service has a residence in the corresponding area.

*UK* Yes

*Switzerland* The VoIP-operator receives a geographic number range in relation to its location. The end-user will get a number out of this range.

*Slovenia* Currently there are only non geographic for VoIP services (operator's choice), but there is no obstacles (legal or technical) for VoIP operators to use geographic numbers as well.

*Belgium* There are no different rules for VoIP operators and those who provide the same service using 'classical' technologies. The conditions are contained in the Royal Decree on numbering and the explanatory notes (see [www.bipt.be](http://www.bipt.be), section numbering, explanatory notes, non-geographical numbers)  
In the particular case of nomadic services, at this time, only geographic

	numbers have been allocated.
<i>Estonia</i>	VoIP service is pursuant to regulation mainly telephone service. Telephone number is a (non-geographic) number used for the provision of telephone service. Telephone number is a number which enables to identify a subscriber who uses telephone service.
<i>Denmark</i>	Denmark has a non-geographic numbering plan. So the user has no choice.
<i>Bulgaria</i> <i>Austria</i>	It's not applicable in Bulgaria yet In general, regulations on numbers are neutral of the technology used for the service. However, the availability of geographic numbers for VoIP services depends on the type of service offered. Geographic numbers can be used for VoIP services as long as the usage conditions as set in the Austrian Numbering Ordinance are fulfilled by the provider (fixed network termination point).
<i>Sweden</i>	Both non-geographic and geographic numbers can be allocated to the VoIP provider. However, it is up to the VoIP provider to decide what number they want to offer to its customers/end-users.
<i>Greece</i>	Currently the user may select either a private number (defined only in the network of the VoIP service Provider) or a geographic number.
<i>Spain</i> <i>Netherlands</i>	Yes Yes. The only restriction is that an operator may not offer a customer a geographical number that does not belong to the geographical area in which the customer lives.
<i>Norway</i>	The user could choose between a provider of non-nomadic services (geographic number) or a provider of nomadic services (non-geographic number).
<i>Portugal</i>	The number depends on the chosen service, namely geographic or nomadic. Usage of a geographic number is only possible for telephony service perceived as having fixed access in a specific and unique address.
<i>Italy</i>	End users can subscribe to a PATS service and are assigned geographic numbers, or can subscribe to ECS-nomadic services and are assigned a non-geographic number.
<i>Ireland</i>	Yes
<i>France</i> (see Footnote 7)	Number portability issues concern only the second type of services.  In France, VoIP providers have the choice to use either geographic or non-geographic numbers for their services. If the provider use preferably non-geographic numbers and the end user wants to keep its previous geographic number, the provider must offer this possibility. Number portability is a right for the customer.

b) Is number portability for VoIP service restricted?

<i>Czech republic</i>	If VoIP is public available telephone service (PATS), providers have obligation to enable number portability. If VoIP is non public available tele-
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phone service (non PATS) or nomad VoIP, providers haven't obligation to enable number portability.

<i>Ireland</i>	<ul style="list-style-type: none"> <li>- SPs that provide PATS are obliged to offer reciprocal number portability to their customers.</li> <li>- Similarly, an ECS VoIP SP assigning Irish telephone numbers to customers is obliged to offer number portability to those customers upon request by another VoIP ECS SP.</li> <li>- An ECS VoIP SP is obliged to offer number portability to customers upon request by individual PATS providers in cases where those PATS providers confirm they are prepared to reciprocate with porting to the ECS VoIP SP concerned.</li> <li>- Number portability obligations are deferred for 076 numbers until January 2007, (other number types as per previous bullets).</li> </ul>
<i>Finland</i>	<p>The obligation for providing number portability applies only to VoIP-services fulfilling the PATS definition (class 4 above). In pre-paid services number portability is an obligation only if there is a customer agreement on the service. In other VoIP-services, number portability might be available, but there is no obligation for it.</p>
<i>Hungary</i>	For PATS services (including VoIP) the number portability is an obligation. For location independent type services it is not prescribed yet, but planned, and the non-geographic numbers are not portable yet.
<i>Malta</i>	If the VOIP service qualifies as PATS then it is obliged to provide number portability to other PATS services.
<i>Lithuania</i>	NO
<i>Cyprus</i>	It is not implemented specifically for VoIP service yet. It is available for geographic, non-geographic and mobile numbers.
<i>Germany</i>	<p>No, there is number portability for VoIP services according to the regulations of the Telecommunications Act. In practice, there is no significant number of complaints regarding problems of number portability at the moment. This might be due to the fact that most consumers do still have a PSTN/ISDN access line, so that the question of number portability has not been posed yet in a very intense way.</p>
<i>UK</i>	No. But number portability is restricted to subscribers of Publicly Available Telephone Services (PATS).
<i>Switzerland</i>	No, the general rules for number portability are also valid for VoIP-services.
<i>Slovenia</i>	No, there is the same regulation of number portability for all electronic communications services. Number portability is only possible to a corresponding service ex. fixed network to fixed network and mobile to mobile.
<i>Belgium</i>	Number portability is restricted to PATS, the underlying technology is irrelevant.
<i>Estonia</i>	<p>No, if VoIP service is telephone service, otherwise no obligation. A subscriber has the right to retain a telephone number belonging to the Estonian numbering plan and issued thereto by a telephone or mobile service provider upon:</p> <ol style="list-style-type: none"> <li>1) change of the telephone service provider;</li> <li>2) change of mobile telephone service provider;</li> <li>3) change of the geographical location of the connection point of the subscriber</li> </ol>
<i>Denmark</i>	No, there is the same regulation of number portability for all electronic

communications services. Number portability is only possible to a corresponding service ex. fixed network to fixed network and mobile to mobile.

<i>Bulgaria</i>	n/a
<i>Austria</i>	No, number portability is obligatory for providers of PATS (i.e. Class A VoIP services).
<i>Sweden</i>	A subscriber has the right to retain his or her telephone number when changing service provider according to the Swedish E-com Act Chap. 5 Section 9, but it is only the “publicly available telephone service providers (PATS)” who has this obligation. If the VoIP service is not a PATS service – there is no obligation to port the number.
<i>Greece</i>	Not yet decided
<i>Spain</i>	Number portability requirements have not been imposed yet
<i>Netherlands</i>	No, there is the same regulation of number portability for all electronic communications services. Number portability is only possible to a corresponding service ex. fixed network to fixed network and mobile to mobile. Of course the restriction under 2a also applies here.
<i>Norway</i>	Yes, but only for non-geographic numbers.
<i>Portugal</i>	No, having in mind that a customer of a fixed telephony service provider using IP technology may port his/her number to another fixed telephony service provider using or not the same technology (geographic number porting), and a customer of a nomadic VoIP provider may port his/her number to another nomadic VoIP provider (nomadic number porting, in a specific number range). Number Portability between services is not possible for the moment.
<i>Italy</i>	All VoIP providers who require rights of use for E.164 numbers (geographic and non-geographic) provide Service Number Portability.
<i>France</i> (see Footnote 7)	No. In France, number portability is available for all numbers (geographic or non-geographic) including those used to provide VoIP services.

c) If number portability for VoIP services is restricted, are VoIP providers obliged to inform their customers about the restrictions?

<i>Czech republic</i>	No, providers haven't obligation to inform end users.
<i>Finland</i>	Operators are in general obliged to specify in the agreement the nature of the service provided as well as restrictions to the service.
<i>Hungary</i>	As the questions of VoIP are not regulated specifically yet, it is not prescribed for the VoIP providers to inform their customers about the restrictions on number portability of VoIP services. But the general principle for all telecom services is that all fundamental questions and characteristics regarding the provision of services must be involved into the contract with the subscriber and/or in the GTCC at least, which must be made available for the customer.



<i>Malta</i>	Currently there are no obligations for a VoIP service that does not qualify as PATS (and hence has no obligation to provide number portability) to inform their customers about restrictions.
<i>Cyprus</i>	N/A. VoIP numbering not implemented yet.
<i>UK</i>	Such an obligation is being proposed by Ofcom's draft code of practice.
<i>Switzerland</i>	n/a
<i>Slovenia</i>	See above
<i>Belgium</i>	If an operator has declared his VoIP-service being PATS, the general number portability conditions apply. Number portability is restricted for nomadic VoIP-services. At this time, the porting of VoIP nomadic numbers is not allowed.
<i>Estonia</i>	In case of cases 1 to 3 there might be restrictions, but there is no special informing obligation.  Otherwise a recipient operator shall submit to a subscriber an appropriate notice, concerning refusal to an application for porting of a number, during one working day.  A recipient and donor operators may refuse to satisfy a request for porting of number if becomes evident that: 1) a subscriber doesn't have the subscription contract for consumption of mobile telephone or telephone service via number specified in an application, 2) a subscriber has provided insufficient or false information, 3) it is established by legal act that portability requirements do not apply to the number under consideration, 4) a subscriber is provided mobile telephone service via payment card and it is not possible to identify a subscriber's personality; 5) a subscriber has submitted an application for porting of a number to other recipient operator and proceedings of it has not been finished yet or 6) a number belongs to a series of DDI numbers.
<i>Denmark</i>	See above
<i>Bulgaria</i>	n/a
<i>Austria</i>	N/A
<i>Sweden</i>	It is not restricted, but also no obligation for the VoIP provider if this provider is not a PATS.
<i>Spain</i>	Yes
<i>Netherlands</i>	See above
<i>Norway</i>	Yes, but only for non-geographic numbers. There are no specific regulations regarding information on this point.
<i>Portugal</i>	Not applicable.
<i>Ireland</i>	Yes

d) If so, how is this information made available?

<i>Czech republic</i>	---
<i>Ireland</i>	If an SP is unable to offer a number porting facility, this must be clearly

stated in all advertising and promotional materials describing the service that are made available to prospective customers in advance of the point of sale and in the SP's customer service contract.

<i>Finland</i>	There is no unified form provided to make the information available, but it is usually available in service descriptions, terms of agreement and in the operator's webpages.
<i>Hungary</i>	The GTCC – covering all public services provided by the service provider – must be presented to the NCAH and must be made available by the service provider (on homepage and physically in the clientele offices). The NCAH publishes all received GCCs in its homepage to inform the public.
<i>Malta</i>	See above
<i>UK</i>	The draft code of practice requires this information to be provided during the sales process, within terms and conditions, in a user guide (if any) and in the provider's general code of practice.
<i>Switzerland</i>	n/a
<i>Slovenia</i>	See above
<i>Belgium</i>	for nomadic VoIP-services :through the general provisions in the contract of the user and (at least) three times a year (generally through the bill sent to the user).
<i>Estonia</i>	See the previous point, please.
<i>Denmark</i>	See above
<i>Bulgaria</i>	n/a
<i>Austria</i>	n/a
<i>Sweden</i>	However, A party that provides a public telephony service (PATs) shall keep information about applicable prices, tariffs and general terms for access to and the use of the telephony service available to the public, according to the Swedish E-com Act Chap. 5 Section 18.
<i>Spain</i>	In the contract.
<i>Netherlands</i>	See above
<i>Portugal</i>	Not applicable.

#### Other comments regarding number portability

<i>Finland</i>	There have been some problems for VoIP service providers providing class 4 service to get numbers ported from other operators. No significant complaints have been received from the users.
<i>Hungary</i>	No significant problem has been received in customer complaints regarding number portability.
<i>Austria</i>	No consumer complaints received, so far.
<i>Sweden</i>	There have not been a significant number of complaints about NP to PTS (in comparison to the total complaints received by PTSI). The complaints received about NP have concerned refusal to port due to contractual obligations, that the contract between the parties had been terminated before the request to NP and also a few (approx. 3-4 complaints) complaints about problems with porting numbers from other nets than PSTN into WLR (wholesale line rental). In the latter cases the end-user had IP-telephony with a broadband company and where there were some problems with porting directly into WLR. The end-user then had to port to a

traditional PSTN with the incumbent, to be able to port to a WLR operator thereafter. PTS had discussions with the WLR operators and the Swedish incumbent about the problem with porting into WLR, whereas it was agreed that this was to be solved together by the operators.

*Italy* Technical implementation of Number Portability will be defined in a specific working group with operators. In the transitory phase operator can agree on their preferred solutions.

### **Tariffs**

1. The End User WG wishes to collect information concerning regulatory status of VoIP services and tariffs.

a) What are the legal requirements on VoIP providers regarding tariffs (e.g. transparency, approval notification and cost orientation)?

<i>Czech republic</i>	PATS providers have following requirements: separate cost and revenue accounting, transparency, publication of tariffs, etc. Non-PATS providers haven't any obligations.
<i>Ireland</i>	All providers of ECS are required to specify in end user contracts particulars of prices and tariffs and the means by which up to date information on all applicable tariffs may be obtained. ComReg has, in Decision No.8 of 04/103 set a retail tariff ceiling of the standard national rate of the network operator from which the call is made but providers are free to set prices anywhere beneath this ceiling.
<i>Finland</i>	VoIP providers as well as any other operators providing ECS are obliged to publish tariff information. Otherwise there is no retail tariff regulation (based on SMP decisions or otherwise).
<i>Hungary</i>	The VoIP PATS services are handled similarly as any other type PATS services. For the location independent VoIP services there are no prescriptions yet.
<i>Malta</i>	<p>VoIP services that access to the public telephone network have to provide a written contract that specifies at least:</p> <ul style="list-style-type: none"> <li>(a) the identity and address of the supplier;</li> <li>(b) services provided, the service quality levels offered, as well as the time for the initial connection;</li> <li>(c) the types of maintenance service offered;</li> <li>(d) particulars of prices and tariffs and the means by which up-to-date information on all applicable tariffs and maintenance charges may be obtained;</li> <li>(e) the duration of the contract, the conditions for its renewal and termination of services and of the contract;</li> <li>(f) any compensation and the refund arrangements which apply if contracted service quality levels are not met; and</li> <li>(g) the method of initiating procedures for settlement of disputes in accordance with the law.</li> </ul> <p>Furthermore, obligations of price-control, transparency and non-discrimination may be imposed on VoIP providers if these are found to enjoy significant market power in the relevant wholesale and retail markets.</p>
<i>Lithuania</i>	There's no specific requirements for VoIP providers regarding tariffs.

<i>Cyprus</i>	No special regulation for VoIP providers. There is the same regulation for all electronic communications operators.
<i>Germany</i>	For the SMP undertaking DT there is an ex-post tariff regulation, misuse control and obligations to announce tariffs.
<i>UK</i>	Transparency – all providers are required to ensure clear and up to date information on prices and tariffs are published and made available to consumers.  Approval notification - None  Cost orientation - None
<i>Switzerland</i>	In Switzerland there is a general price rule applying for almost all goods and services. The prices have to be clear and transparent, indicating also the quantity (e.g. price/minute, price/kg etc.).
<i>Slovenia</i>	No special regulation for VoIP providers. There is the same regulation for all electronic communications operators that are not SMPs.
<i>Belgium</i>	The legal basis for VoIP regulation in Belgium is the Act of 13 June 2005 on Electronic communications. In accordance with the European framework, there is no possibility to regulate retail tariffs of operators out of the scope of market analysis. This means that approval of tariffs or cost orientation could only be imposed when the market analysis process would be achieved, which is not the case at the moment in Belgium.  Concerning tariff transparency, the Belgian law provides a certain number of obligations to PATS, such as giving detailed information to customers regarding tariffs and separation of tariff plans.
<i>Estonia</i>	There are no special obligations put on tariffs of VoIP service providers. It probably happens after analyzing appropriate market.
<i>Denmark</i>	No special regulation for VoIP providers. There is the same regulation for all electronic communications services.
<i>Bulgaria</i>	There are no special requirements on VoIP providers. Under the provisions of Bulgarian Law for telecommunications all operators are obligated to publish their tariffs.
<i>Austria</i>	The same as for "normal" telephony service providers (POTS), see Q 2a. There are no specific provisions for VoIP-services. Retail tariff regulation applies only to SMP-undertakings.
<i>Sweden</i>	There are no legal requirements regarding tariffs.
<i>Greece</i>	No regulatory intervention yet.
<i>Spain</i>	VoIP providers have to include the information regarding tariffs in their contracts, but there is no legal requirement.
<i>Netherlands</i>	We cannot answer the questions on tariffs unambiguously, because the tariff regulation does not make a distinction between VoIP and PSTN networks. Tariff regulation is based on the market position of the provider.
<i>Norway</i>	The legal requirements on VoIP providers are the same as on providers of traditional telephony services (PSTN/ISDN). Transparency: All providers of public telephone services shall publish clearly set out and updated information on terms of supply. Cost orientation: No requirement.

*Portugal* In continuance of the relevant legal provisions, by determination of 1 September 2005<sup>8</sup>, guidelines on the minimum content to be included in electronic communications service provision contracts were approved. Those guidelines consist of recommendations on the minimum content to be included in contracts for offering of PATS and ECS.

In the same context, ICP-ANACOM determined on 21 April 2006<sup>9</sup>, the adoption of measures which reinforce and safeguard the rights and interests of subscribers and users of the various electronic communications services, establishing obligations which guarantee the right to information to users and subscribers, namely with regard to the publication of the respective conditions on offers and use, including transparent and up-to-date information on applicable prices.

*Italy* All VoIP providers are subject to a non discrimination obligation between the tariffs applied to calls directed to geographic and non-geographic numbers: the tariff for a call directed to a non-geographic number ("55" code allocated to nomadic services) should not exceed the tariff, applied to the same customer, to call a geographic number.

*France*  
(see Footnote 7)

Tariff issues concern only the second type of services.

From the retail tariff point of view, the VoIP providers are obliged to publish their tariffs (consumer law) but there are no constraints regarding a potential approval notification or cost orientation (see ARCEP's decision regarding fixed lines retail markets published on the CIRCA website n° FR/2005/221).

Concerning retail tariffs for number portability, they must be reasonable with respect to law provisions and mustn't be dissuasive.

At the wholesale level, there is no specific regulation related to VoIP. Concerning geographic numbers, tariffs are non excessive for alternative operators and cost oriented for the incumbent. For non-geographic numbers, no decision has been taken yet.

Concerning wholesale tariffs related to number portability, they must be cost oriented.

b) Is there any tariff differentiation between nomadic and non-nomadic VoIP services?

*Czech republic*  
*Finland*

We don't know, we haven't any information about it.

No regulatory tariff differentiation.

There is no comprehensive information available on the tariffs charged by VoIP service providers.

*Hungary*  
*Malta*

We have no information.

No there is no distinction in the regulation of nomadic and non-nomadic

*Lithuania*

Law doesn't regulate tariff differentiation. Providers apply different tariffs for nomadic and non-nomadic VoIP services.

*Cyprus*  
*Germany*

Is not regulated

No there is not.

*UK*

No

*Switzerland*

Operators are free to set their tariffs. A differentiation between nomadic and non-nomadic VoIP-services is not observed.

<sup>8</sup> <http://www.anacom.pt/template20.jsp?categoryId=146189&contentId=293560>.

<sup>9</sup> <http://www.anacom.pt/template20.jsp?categoryId=3730&contentId=357232>.

<i>Slovenia</i>	Is not regulated
<i>Belgium</i>	Given the fact that most of the nomadic VoIP services are not considered as publicly available telephony services, the obligations described here above are not applicable to nomadic VoIP services
<i>Estonia</i>	These services are not distinguished in the price-lists of our VoIP service providers.
<i>Denmark</i>	Is not regulated
<i>Bulgaria</i>	no
<i>Austria</i>	In terms of tariffs normally no but we don't have sufficient information about potential issues regarding different usage-fees.
<i>Spain</i>	VoIP providers have not offered VoIP services yet.
<i>Norway</i>	No differentiation in a regulatory sense
<i>Portugal</i>	Following the public consultation on VoIP launched in 07/11/05 by ICP-ANACOM, it was determined by deliberation of 23/02/06 <sup>10</sup> , the opening of the numbering range "30" to accommodate the provision of nomadic VoIP services, and the allocation of 10,000 numbers to the providers that are entitled to provide nomadic VoIP services, under the terms defined by ANACOM. Actually there aren't any services/tariffs provided in that number range, so there is no differentiation.
<i>Italy</i>	Tariff differentiation is not regulated. Providers apply different tariffs for nomadic and non-nomadic VoIP services. However all VoIP providers are subject to a non discrimination obligation between the tariffs applied to calls directed to geographic and non-geographic numbers: the tariff for a call directed to a non-geographic number ("55" code allocated to nomadic services) should not exceed the tariff, applied to the same customer, to call a geographic number.
<i>Ireland</i>	No

2. The End User WG wishes to assess the availability of tariff information and ways to control expenditure.

a) If VoIP providers are obliged to publish tariffs, how is this information made available for their customers?

<i>Czech republic</i>	PATS providers have obligation to public detail information about the prices and pricing plans and the structure thereof, including the pricing plans for low-income people and people with special social needs. Non-PATS providers have obligation to public information about the methods of obtaining the latest information on all the valid service prices.
<i>Ireland</i>	As in 1 above, information to be provided in contracts in line with requirement on all providers of ECS.
<i>Finland</i>	Usually in operators' webpages (or other tariff guides).
<i>Hungary</i>	General principle for all telecom services is that all fundamental questions and characteristics regarding the provision of services (including tariffs) must be involved into the contract with the subscriber and/or in the GTCC at least, which must be made available for the customer. The GTCC – covering all public services provided by the service provider – must be presented to the NCAH and must be made available by the service provider (on homepage and physically in the clientele offices). The NCAH publishes all received GCCs in its homepage to inform the public.

<sup>10</sup> <http://www.anacom.pt/template20.jsp?categoryId=177742&contentId=340425>.

<i>Malta</i>	This information is made available in the service contract (see above).
<i>Lithuania</i>	Under the article 34 paragraph 2 of Law on Electronic communications providers of publicly available electronic communications shall make publicly available transparent information on applicable prices and tariffs. Tariffs are mostly published on providers website.
<i>Cyprus</i>	They are obliged as all other providers to publish tariffs. They are obliged to publish in a suitable manner the tariffs and the information on tariffs and charges relating to their services to end users/consumers. This obligation applies to both new tariffs and information on tariffs and charges, as well as to their relevant amendments. Publication is to occur simultaneously with the announcement of tariffs and of information on tariffs and charges in two (2) daily newspapers and one (1) economic newspaper of broad circulation, as well as on the provider's site on the Internet.
<i>Germany</i>	They are obliged as all other providers of ECS (sec. 27 para. 1 Telecommunications Customer Protection Ordinance) to give information about tariffs to the customer. They are contained in price lists that are made available via the WWW, brochures etc.
<i>UK</i>	Providers are required to publish the information. Publication is effected by 1) sending a copy of such information or any appropriate parts of it to any end user who may reasonably request a copy or 2) placing a copy of the information on any relevant website and in every major office so that it is readily available for inspection free of charge.
<i>Switzerland</i>	There is no regulation about the form. The operator just has to respect the general rules about price indication (see 1 b.).
<i>Slovenia</i>	They are obliged as all other providers to give information about tariffs.
<i>Belgium</i>	There is no obligation for any operator to provide charge advice facility.  The publication of tariff may be done by any means available. The law does not impose a particular way to give consumers detailed information.
<i>Estonia</i>	A communications undertaking is required to make available to the public at its website or in the absence thereof, in any other reasonable manner the following conditions: - charges for services including maintenance charge, procedure for settlement of accounts, and discounts and other price packages; - quality requirements set for electronic communications services; Also the information will be available in the contract.
<i>Denmark</i>	They are obliged as all other providers to give information about tariffs to the  Providers of public voice telephony services to end-users that enable end-users to call other end-users with numbers in the Danish numbering plan shall give their own end-users access to a call-based charge advice facility. The providers shall offer this facility not later than six months after starting their provision of services.  Via the charge advice facility, the end-user shall be able to get information directly about all relevant costs, including any call setup charge and the list price per minute, by calling a number in the Danish numbering plan. However, the charge advice facility shall not contain price information regarding calls to number series designated for information and content services. Nor shall information be given about the price for calls from

abroad, e.g. when mobile telephones are used abroad.

The facility shall be offered free of charge or for a charge not exceeding the costs of providing the facility.

*Bulgaria*

The tariffs need to publish at least on one newspaper and on the web-sides of the operators and need to be available in all the operator's offices.

*Austria*

In the same way as normal telephony service providers (POTS) are obliged to publish their information. Especially the following provision of § 25 of the Austrian Telecommunications Act (TKG 2003<sup>11</sup>) also applies to VoIP-providers:

According to § 25 ss 1 and 2 of the Austrian Telecommunications Act (TKG 2003) operators of communications networks or services are obliged

1. to notify their tariffs (to the RTR) and to promulgate their tariffs in an appropriate form (e.g. on the website, in the shop) before provision of the service is started (first notification and promulgation).
2. to notify any changes of their tariffs to the RTR and to promulgate before they take effect. Changes not exclusively favourable for the customer are subject to a notification period of two months (notification and promulgation of changes).
3. In case of changes not exclusively favourable the customer has the right to terminate the contract extraordinary (§ 25 ss 3 TKG 2003).

Moreover the provision of § 25 ss 5 TKG 2003 stipulates that tariffs shall contain at least:

1. details about one-off, periodical and variable tariffs including the start and end times of tariffing of connections and the type of tariffing;
2. reference as to how the end-user may obtain information about operator's current tariffs;
3. discounts, where applicable.

However the NRA is (apart from the approval of tariffs of SMP-operators) not empowered to check the notified tariffs but publishes them on their website.<sup>12</sup>

*Sweden*

Website and for those who don't have access to Internet the VoIP provider will have to give them a price list on paper

*Greece  
Spain*

It will be examined under the new regulation for authorization  
VoIP providers have to include information regarding tariffs in their contracts and they have to specify the way to update this information.

*Norway*

The contract with the consumer should include information on prices and where to access updated information on prices. The VoIP provider should also publish prices (for all practical purposes: the Internet).

*Portugal*

In Decision of 21 April 2006<sup>13</sup>, it was determined that information regard-

<sup>11</sup> Non binding english translation at:  
[http://www.rtr.at/web.nsf/englisch/Telekommunikation\\_Telekommunikationsrecht\\_TKG+2003](http://www.rtr.at/web.nsf/englisch/Telekommunikation_Telekommunikationsrecht_TKG+2003)

<sup>12</sup> <http://www.rtr.at/agb-eb>.



ing tariffs of telephone services accessible to the public (PATS) and electronic communication services (ECS), should be available to the end users in points of sale (agents, etc) and respective internet web-sites (when existent).

<i>Italy</i>	This information is part of the Cart of Service obligations.
<i>France</i> (see Footnote 7)	Information on tariffs are available in the contract with the subscriber or on their website, etc.
b) Are VoIP providers obliged to give their customers an itemized bill on request?	
<i>Czech republic</i>	No, they haven't this obligation.
<i>Ireland</i>	There are no billing requirements that are specific to VoIP providers – the general framework applies. Only the USP is obliged to provide an itemised bill.
<i>Finland</i>	Custom and practice results in most other providers providing itemised bills to varying degrees of detail. These are frequently web-based but paper copies can be provided (see below). In practice all service providers should be capable of producing detailed itemised call records in the event of billing disputes The VoIP provider is obliged by law to provide itemized bill if it provides a VoIP-service fulfilling the PATS definition (class 4 above).
<i>Hungary</i>	General principle that in case of all type subscriber services, out of pre-paid ones, the service provider must give itemized bill on request.
<i>Malta</i>	Only an undertaking designated by the MCA as the Universal Service Provider is required to provide itemized bills. This obligation applies to services that qualify as PATS services, including therefore VoIP services that qualify as PATS.
<i>Lithuania</i>	No
<i>Cyprus</i>	Yes. There is the same regulation as for all other providers.
<i>Germany</i>	Yes. There is the same regulation as for all other providers of voice communications
<i>UK</i>	Only providers of PATS are obliged to provide itemized bills on request (unless the service is pre-pay or the customer can monitor usage and expenditure another way).
<i>Switzerland</i>	Yes, they are.
<i>Slovenia</i>	Yes. There is the same regulation as for all other providers.
<i>Belgium</i>	The standard level of detail a bill must present is determined by Ministerial decree. In accordance with the Privacy directive, a consumer may always obtain a non-detailed bill, on simple request. He may also receive a more detailed bill in case of litigation related to the bill.
<i>Estonia</i>	No
<i>Denmark</i>	Yes. There is the same regulation as for all other providers.
<i>Bulgaria</i>	No
<i>Austria</i>	Yes, the provision of § 100 Austrian Telecommunications Act 2003 (itemized bill) also applies to VoIP-services.

<sup>13</sup> <http://www.anacom.pt/template20.jsp?categoryId=3730&contentId=357232>.

<i>Sweden</i>	Yes, if the service includes the possibility to call up Emergency services it is supposed to be a telephony service and then the VoIP provider is obliged to give their customers an itemized bill.
<i>Greece</i>	No
<i>Spain</i>	Yes
<i>Norway</i>	Yes
<i>Portugal</i>	In the above Decision, in line with n° 2 of art° 47th of Law n°5/2005 of 10th February, in the framework of telephone service accessible to public (PATS), companies should publish and make available itemized billing to the end users.  Regarding other electronic communication services (ECS), entities which offer those services have no obligation to provide itemized billing to the end users.
<i>Italy</i>	The same obligations of traditional PSTN services applies for PATS-VoIP services.
<i>France</i> (see Footnote 7)	As any telephone providers, VoIP providers are obliged to provide free of charge an itemised bill on request.

c) If so, must it be free of charge and in a specific form?

<i>Czech republic</i>	No.
<i>Finland</i>	In cases where itemized bill has to be provided by law, the basic itemisation has to be provided free of charge. There are no provisions about a specific form.
<i>Hungary</i>	There is no specific form, but the specific minimal content is prescribed by the Communications law, and the itemized bill must be provided free of charge.
<i>Malta</i>	Where the subscriber is entitled to an itemized bill the said bill must in relation to the basic level of information required, be provided free of charge.
<i>Cyprus</i>	Yes. The same regulation applies as for all other providers.
<i>Germany</i>	The end user may demand that the bill is itemized. The standard format containing basic parameters is free of charge.
<i>UK</i>	If the service is PATS, itemized billing must be provided at no extra charge or for a reasonable fee. No specific form is required but the information must enable to the consumer to verify, control and monitor the charges incurred.
<i>Switzerland</i>	There is a specific form required – like for all operators – but the operator is allowed to charge for the itemized bill. In fact, all operators are offering itemized bill free of charge.
<i>Slovenia</i>	The basic itemization is defined in the Electronic Act (it should enable end users the control and verification of the expenditure) and is the same for all operators. The bill the consumer receives must be free of charge. The operator has to declare the further (more advanced) itemization of the bill in its General Conditions and has to set the price in the price list if it is being charged.
<i>Belgium</i>	In case of litigation, the detailed bill must be free of charge.

<i>Denmark</i>	The end-user may demand that the bill he receives should either be a tariff-grouped bill or an itemized bill. The bill the consumer receives must be free of charge. If the consumer wants another bill for the same period of time the provider may charge for making the bill.
<i>Bulgaria</i>	See above
<i>Austria</i>	- Yes. - No, basically the operator can also provide the bill in an electronic form, but if the customer wants the itemized bill paper-based (instead of electronic) he must fulfill his wish free of charge.
<i>Sweden</i>	Free of charge. PTS is about to issue regulations regarding requirements and format of an itemized bill.
<i>Spain</i>	The VoIP providers may charge for this and there is no specific form.
<i>Norway</i>	The providers can charge a cost oriented price. No requirement as to form
<i>Italy</i>	The same obligations of traditional PSTN services applies for PATS-VoIP services.
<i>Ireland</i>	As there is no regulatory requirement (other than in respect of the USP) there is no restriction on the ability of any provider to impose a charge for producing an itemised bill. Similarly there is no regulatory specification as to the format of such itemisation.
<i>France</i> (see Footnote 7)	It must be free of charge. The form is not specified.

d) Are there other ways that customers can control their expenditure?

<i>Czech republic</i>	Providers haven't obligation, but they can offer other options how customers can control their expenditure. CTO hasn't information if they do so.
<i>Finland</i>	Also call-barring has to be available in all VoIP-services fulfilling the PATS definition (class 4 above). Operators may also provide other commercially provided ways of controlling expenditures (such as credit limits etc).
<i>Hungary</i>	There is no extra obligation, but the service provider on its own decision can make available the expenditure, and its details for its customer in any way, e.g. through the web.
<i>Malta</i>	The provision of alternative expenditure control mechanisms is left to the discretion of the undertaking providing the service in question. Moreover undertakings may at their discretion provide additional levels of detail in their itemized bills either at a charge approved by the MCA or at no charge.
<i>Lithuania</i>	Under the article 34 paragraph 5 of Law on Electronic communications provider of electronic communications services shall inform the subscriber free of charge about the services provided and about tariffs and prices if the subscriber so requests.
<i>Cyprus</i>	No
<i>Germany</i>	N/A
<i>UK</i>	Pre pay accounts are available from VoIP operators.
<i>Switzerland</i>	There is no obligation for operators to offer instruments for expenditure control. Nevertheless, some operators are offering online-accounts or other means of information.
<i>Slovenia</i>	No
<i>Belgium</i>	There are several ways:

	<ul style="list-style-type: none"> <li>• Pre-paid mechanisms and spread out payments (for USO only);</li> <li>• Measures that may be taken in case of non-payment (to be determined by the Minister);</li> <li>• Possibility to ask the operator to prevent the establishment of communication towards certain categories of numbers (free of charge, applicable to all electronic communications services providers).</li> </ul>
<i>Estonia</i>	End users of VoIP services may control/invigilate their expenditure on the web-site of the service provider. See also answer Tariffs 2.a
<i>Denmark</i>	Providers of public electronic communications networks or services including telephony via fixed networks, ISDN services and mobile communications who use usage-dependent charging of the service shall offer the end-user a billing control arrangement.
<i>Bulgaria</i>	No
<i>Austria</i>	Till now, we hardly have any specific information about cost-control-services in the VoIP-area. Some operators offer selective call barring and up-to-date-online consumption information
<i>Sweden</i>	There are no regulations regarding other ways of controlling expenditure but some VoIP-services offer information on-line regarding costs etc. (Skype-out)
<i>Norway</i>	Some VoIP providers may offer systems for pre-payment or flat fees.
<i>Portugal</i>	If VoIP service is offered under conditions perceived by the user as equivalent to those in traditional fixed telephone service, subscribers of publicly available networks and services, have the right to receive itemised bills, where requested, accordingly with the Law N°5/2004 of 10 <sup>th</sup> February (vide <a href="http://www.anacom.pt/template20.jsp?categoryId=105319&amp;contentId=180332">http://www.anacom.pt/template20.jsp?categoryId=105319&amp;contentId=180332</a> ), otherwise such other ways to control expenditure were not foreseen so far.
<i>Italy</i>	Not yet defined.
<i>Ireland</i>	There is no regulatory requirement on service providers (other than the USP) to provide for measures to allow consumers to control their expenditure.
<i>France</i> (see Footnote 7)	Generally, customers can follow their expenditures through an account on the website of their provider.

### **Quality of service**

The End User WG wishes to assess the availability of QoS information of VoIP to consumers.

a) Is QoS information on VoIP services available to end-users and if so, in which form and what are the main Key Performance Indicators (KPIs)?

<i>Czech republic</i>	Providers haven't obligation to public QoS information. It's up to their decision to public it.
<i>Ireland</i>	No – The requirement for publication of QoS information relates only to the USP
<i>Finland</i>	In general, only information about the answering time of the operators customer service has to be published in Finland. This applies as well to VoIP providers as to any other service providers.
<i>Hungary</i>	According to the 345/2004 Governmental Decree the providers of sub-

subscriber services must choose QoS KPIs and declare them in their General Contracting Conditions by a) target and b) minimal KPI values, so, that the customer should be able to compare these data with the data of other similar services of other service providers. These data should contain at least:

- A) General quality indicators concerning all subscriber service types:
  - Delivery time of establishment of a new service access
  - Time limit for fault clearing of reported quality complaints
  - Time limit for reported billing complaints in case of such services which are based on traffic measurement
  - Availability of service.
- B) Special quality indicators concerning telephone services:
  - Unsuccessful call ratio
  - Call set-up time
  - Response time for operator service
  - Bit fault ratio per access line regarding the secondary usage for data transmission.
- C) Special quality indicators concerning Internet and other data transmission services:
  - Abnormal suspension of services (total time in a year)
    - o Which affects the full territory of the service
    - o Which affects at least 10 % of subscribers
  - Guaranteed up- and download speed
  - Bit fault ratio by access lines

The service provider is obliged to control these KPIs regularly, and make the results available for the customers through its Internet homepage and in its clientele offices within 30 days.

Once a year (by 31<sup>st</sup> January) the service provider is obliged to present to the NCAH the authentic verification of one year period suitability of services provided (if the service was provided half year long at least). The NCAH has the right and obligation of controlling the presented documents and measurable data.

<i>Malta</i>	Only a designated undertaking with universal service provision obligations is obliged to publish adequate and up-to-date information concerning its performance in relation to the provision of universal service obligations. Currently, this is interpreted as not including VoIP services provided by that designated undertaking when these services are not part of the universal service obligations but are merely ancillary services.
<i>Lithuania</i>	Under the article 34 paragraph 2 of Law on Electronic communications Providers of publicly available electronic communications services shall make publicly available transparent information on quality of service.
<i>Germany</i>	No, there is no specific QoS information on VoIP services made available by the Regulatory Authority. However, if a VoIP service is classified as a publicly available telephone service, service providers have to measure the QoS parameters according to Annex III of USD 2002/22/EC. This does not include any VoIP specific parameters.

Additional comment:

It would make no sense to provide information on KPIs<sup>14</sup>. This kind of indicators are used to monitor whether business models and policies are adopted correctly by means of appropriate network management indicators. There is no benefit for the user to have access to this information as he is not able to evaluate the correlation between KPIs and user perceivable service quality. If any quality information is intended to be

<sup>14</sup> It is assumed that KPIs are understood as described in ITU-T Rec. E.419.

made available to end users, it should be based on QoS or network performance parameters.

Furthermore any QoS information on VoIP services should be the same – of course apart from any additional service functions – as for any real-time voice communication service. The user is not interested in the underlying technology but in the performance of the main service function(s), i.e. (mainly) the speech communication quality. Thus the same QoS parameters as for the traditional telephony have to be applied, e.g. ETSI EG 202 057-2.

<i>UK</i>	No. However Ofcom has published a direction requiring certain fixed voice service providers to publish objective and comparable QoS information on supply times, fault rates and fault repair times; billing complaints; and complaint resolution times. Only providers with a certain turnover/of a certain size are captured by the obligation. As such no VoIP providers currently fall within the scope of the obligation.
<i>Switzerland Slovenia</i>	At present there is no regulation on quality of services. It is the same obligation for all operators of public electronic communication that they have to set in the end-user contract which service is being provided, it's quality, the term for connection of the end user, compensation for the non properly performed service, etc.
<i>Belgium</i>	The Belgian law provides a general obligation of information from operators to their customers. This Information has to be published on the operators' websites. BIPT may determine QoS indicators and the content, the form and the methods applicable to this publication. These indicators are not available yet.
<i>Estonia</i>	Usually not, but some service providers are publishing some basic QoS information like Call Setup Time (less than 20 sec) and Call Accessibility (over 95%).
<i>Denmark Bulgaria</i>	Is not regulated. Under the provisions of Bulgarian Law for telecommunications the information of QoS is a part of end-users contracts.
<i>Austria</i>	Yes, normally stated in general terms and conditions (GTC's). Usually the clauses are verbalized quite general, but some providers foresee specific provisions of service-availability (e.g. average in percent per year) and types of maintenance services.
<i>Sweden</i>	Some QoS information is available for end-users by some operators. Such information can for example be regarded to customer support and security issues, although these are general information and not specified for VoIP only. The information is mainly available on the operators websites. There is also an obligation to inform about QoS within the contract between the SP and the end-user.
<i>Spain</i>	There are no specific QoS parameters for VoIP service defined yet. Nevertheless, the VoIP provider could define its own QoS and in this case, the VoIP provider will publish detailed, comparable, adequate, easy accessible and up-to-date information about the quality of the services they provide, both the quality offered and the quality finally obtained.
<i>Netherlands</i>	All providers of public telephony services must publish information on network quality on a regular basis. This obligation is independent of the technical aspects of the network. This applies for operators that have been active on the market for more than 12 months.

<i>Norway</i>	QoS information on VoIP services is not currently available to end-users, but we are planning to publish this kind of information. We are also looking into which KPI's which are relevant for VoIP services.
<i>Portugal</i>	<p>By determination of 4 May 2004, and pursuant the articles 40 and 125 of the Law no. 5/2004, ICP-ANACOM has been approved a Regulation on the Quality of Service applicable to the service of access to the public telephone network at a fixed location and the publicly available telephone service at a fixed location, irrespective of a supporting technology (Regulation no. 46/2005<sup>15</sup>).</p> <p>Within this context, the referred Regulation is applied to providers offering VoIP services at a fixed location.</p> <p>The Regulation no.46/2005, establishes the parameters of quality of service to be measured by the undertakings responsible for the provision of the referred services, and also determines the contents, form and manner of publication of information on the quality of service.</p> <p>The established parameters were based on the ETSI Guide, although some adjustments were introduced in its definition/calculation methodology. Thus, the adopted parameters were:</p> <ul style="list-style-type: none"> <li>• PQS1 - Supply time for initial network connection;</li> <li>• PQS2 - Fault rate per access line;</li> <li>• PQS3 - Fault repair time;</li> <li>• PQS4 - Response time for operator services.</li> </ul>
<i>Italy</i>	VoIP Operators have to publish some general telephony QoS data, which can be used independently of the technology adopted, like Call Setup Time, Call Accessibility, Fault rate per access line; Fault repair time; Response time for operator services, etc..
<i>France</i> (see Footnote7)	<p>For VoIP services of the first type, the provision of QoS information is only of the responsibility of the service provider.</p> <p>For the second type of VoIP services, the provision of QoS information is not mandatory yet. ARCEP is currently investigating a process to compel each telephone provider (including VoIP providers) to measure and publish indicators. This kind of obligations already exists but only for the US provider, in line with USO Directive provisions.</p>
b) Are VoIP providers obliged to inform their customers about limitations on QoS (eg. transmission delays, delay variations and packet losses) compared to traditional fixed network services and if so, in which form?	
<i>Czech republic</i>	Yes, but it's limited. Provider must public description of the provided service, the guaranteed level of its quality and the date of commencement of the provision thereof.
<i>Ireland</i>	<p>Service reliability &amp; quality</p> <ol style="list-style-type: none"> <li>1. It is a condition of geographic number allocation that consumers are advised in their contracts of "limitations of their service vis-à-vis what those customers might legitimately expect compared with what would traditionally be expected from a PATS service".</li> <li>2. SPs are expected to draw their customers' attention to any significant differences in service reliability between the SP's VoIP service and circuit</li> </ol>

<sup>15</sup> <http://www.anacom.pt/template13.jsp?categoryId=151764>

switched public telephony networks at the point of sale and in any user guide issued by the SP.

3. SPs are also expected to advise potential new customers (at the point of sale) of any limitations on quality that they might experience in using the services, where these might otherwise lead to complaints or dissatisfaction. In particular, impacts of latency or problems associated with packet loss should be considered in this context.

<i>Finland</i>	No specific obligations. However, the nature of the service provided as well as restrictions to the service in general must be specified in the service agreement.
<i>Hungary</i>	The VoIP service providers are obliged to inform the customers about QoS KPIs as written above, but are not obliged to make comparison to traditional fixed network services.
<i>Malta</i>	See above
<i>Lithuania</i>	No
<i>Cyprus</i>	For VoIP services, even though the regulation of quality of the provided services does not fall within the framework of the relevant regulation, with the objective of informing as well as protecting the consumers, the OCECPR decided to specify quality indicators of the offered service which are defined in the document "Quality Framework for Voice Communication over Packetised Networks" published by the Office of the Commissioner in April 2003. The measurements of specific parameters (e.g. m2e delay, codec type, echo loss, packet loss), based on calls terminated in Cyprus, are submitted each month by licensed 'voice through IP' service providers and these are evaluated and compared with the minimum acceptable quality levels as these have been determined through the providences of the relevant document, with the results of the evaluation to be published in the OCECPR website, <a href="http://www.ocecpr.org.cy">www.ocecpr.org.cy</a> , every two months.
<i>Germany</i>	No. Since there are no regulations on minimum requirements or thresholds with respect to quality, service providers are free to offer services at any quality level. Thus there would be no meaning in providing such an information. Furthermore in Germany there is no regulated minimum transmission quality that could be used as a reference. The only quality information for voice telephony service available to the user is the one requested by Annex III of USD 2002/22/EC. However, this information totally ignores the quality impacts of transmission impairments like the ones proposed here (transmission delays, delay variations and packet losses).
<i>UK</i>	Yes – we are proposing that this information is required by the draft code of practice. The draft code proposes to require providers to inform their customers about the circumstances under which the service may cease to function – ie if there is a power cut of the customer's broadband network fails. This information should be made available during the sales process, in terms and conditions and in a user guide. Ofcom has suggested some appropriate text for conveying this message.
<i>Switzerland</i>	N/A
<i>Slovenia</i>	Yes, look above
<i>Belgium</i>	The same regime is applicable to operators using classical types of technologies as to VoIP operators.
<i>Estonia</i>	See also answer Tariffs 2.a
<i>Denmark</i>	No obligations – is not regulated.
<i>Bulgaria</i>	There are no different requirements on QoS to VoIP providers compared to the operators provide fixed network services.



<i>Austria</i>	There are no specific obligations in the Austrian Telecommunications Act.
<i>Sweden</i>	According to the Electronic Communication Act (2003:389) a party that provides public electronic communications services may be ordered to publicise for end-users comparable, adequate and up-to-date information about the quality of the services. If a specific VoIP service constitutes a public electronic communication service according to the definition in the Electronic Communication Act, the same regulatory conditions apply for such a service. PTS is in the process of investigating and producing regulations concerning quality of service and is also studying what parameters that the operators will be obliged to inform the customer about. For the time being there is no obligation to inform customers about limitations on QoS compared to traditional fixed network services.
<i>Greece</i>	At this point of time, there are not any specific obligations for VoIP operators.
<i>Spain</i>	The VoIP providers have to inform their customers in a clear and intelligible way that the VoIP service differs from the public telephone service and its restrictions
<i>Netherlands</i>	See above
<i>Norway</i>	No
<i>Portugal</i>	The service providers which offer VoIP services at a fixed location and the providers of nomadic VoIP with assigned numbering should adopt the provisions and recommendations foreseen in the determination "Minimum Content to be Included in contracts for publicly available telephone services (mobile or at a fixed location)" <sup>16</sup>
	The providers of nomadic VoIP without assigned numbering should adopted the provisions and recommendations foreseen in the <b>determination</b> "Minimum Content to be Included in contracts for Electronic Communications Services" <sup>17</sup>
	In the scope of the determination on the object and form of public disclosure of the conditions of provision and use of electronic communication services <sup>18</sup> , it is established that the service provider should provide information relative to the quality of service levels that should be addressed to consumers, i.e., the minimum levels of QoS agreed and whose violation might determine the payment of a compensation. The determination suggests some of the parameters that might be measured.
<i>Italy</i>	At the present no specific information on QoS has to be provided to customers, apart from general information defined in the Service Cart directive.
<i>France</i> (see Footnote 7)	There are no obligations for VoIP providers to inform their customers regarding the quality of the service and possible limitations compared to traditional fixed network services.

<sup>16</sup> <http://www.anacom.pt/template12.jsp?categoryId=162262#3>

<sup>17</sup> <http://www.anacom.pt/template12.jsp?categoryId=162262#3>

**Cross-border issues**

The End User WB wishes collect information related to cross-border services and identify problems concerning NRA's competence or other cross-border issues.

a) Have you experienced any cross-border consumer complaints?

<i>Czech republic</i>	No, we haven't any experience.
<i>Ireland</i>	Not aware of any complaints relating to cross border issues
<i>Finland</i>	No
<i>Hungary</i>	In the last period no recorded cross-border complaint was received.
<i>Malta</i>	The MCA has not received any cross-border consumer complaints in relation to VoIP services
<i>Lithuania</i>	No
<i>Cyprus</i>	No
<i>Germany</i>	No
<i>UK</i>	Yes but currently low level.
<i>Switzerland</i>	No, not yet
<i>Slovenia</i>	No
<i>Belgium</i>	N/A
<i>Estonia</i>	No
<i>Denmark</i>	No, the NRA does not deal with complaints from consumers.
<i>Bulgaria</i>	No
<i>Austria</i>	Not at the moment
<i>Sweden</i>	Not to our knowledge
<i>Greece</i>	No
<i>Spain</i>	No, CMT does not deal with complaints from consumers
<i>Netherlands</i>	Not worth mentioning
<i>Norway</i>	Yes, but very few. E.g. we received a complaint from a consumer that tried to use his VoIP service abroad. The local ISP barred the service.
<i>Portugal</i>	We are not aware of complaints of such kind.
<i>Italy</i>	No.
<i>France</i> (see Footnote 7)	As the providers of VoIP services of the first type do not need to be declared to ARCEP, the questions below concern only providers of services of the second type.  Some questions have arrived to ARCEP regarding cross-border use of numbers but the complaints generally come from other operators rather than from consumers.

b) In the case of VoIP services from another country, have you identified any problems concerning your competence to enforce rules and regulations against such providers?

<i>Czech republic</i>	No.
<i>Ireland</i>	No complaints have been recorded so far. It is likely that enforcement of cross border issues will be a problem in the future.
<i>Finland</i>	Yes. Ficora has evaluated its competence to enforce the Finnish legislation on services provided by Skype. See more detailed analysis of the matter at

[http://www.ficora.fi/englanti/document/Skype\\_final\\_English.pdf](http://www.ficora.fi/englanti/document/Skype_final_English.pdf).

<i>Hungary</i>	No such problem was detected
<i>Malta</i>	See above. No problems relating to competence or jurisdiction have yet been identified
<i>Lithuania</i>	No
<i>Cyprus</i>	Not yet
<i>Germany</i>	Yes. The enforcement of rules against providers may be especially relevant in the case of VoIP but is also a problem concerning "traditional" telephone and internet-services.
<i>UK</i>	Yes carrying out enforcement against non resident/EU entities is a challenge and requires cross border cooperation.
<i>Switzerland</i>	Yes, there were some discussions - especially with Skype - about the registration as a provider of public voice telephony.
<i>Slovenia</i>	Not yet
<i>Estonia</i>	No complaints have been experienced.
<i>Denmark</i>	Not yet
<i>Bulgaria</i>	No
<i>Austria</i>	See above
<i>Sweden</i>	Obviously there would be problems to enforce regulation on a provider which has no physical presence within our national borders. As such it is difficult to impose any penalty fines etc. and be helped by another NRA to execute those penalties. To my knowledge the Swedish NRA have not experienced any of these practical problems yet.
<i>Greece</i>	No
<i>Spain</i>	Not yet.
<i>Netherlands</i>	See above
<i>Norway</i>	Yes, but only in theory.
<i>Portugal</i>	<p>National law only applies within the Portuguese borders, so it is impossible to enforce rules and regulations against providers located in other countries.</p> <p>In Europe, the European Commission, with the launch of a consultation on VoIP in June 2004<sup>7</sup>, and the National Regulatory Authorities (NRA)<sup>8</sup> are discussing VoIP related issues and its impact on markets (such as is occurring in the USA and Southeast Asia), given the underlying importance of a stable and predictable regulatory framework which boosts investment and safeguards user interests.</p> <p>We should note that distinct practices have been adopted in the Community context to date with respect to VoIP (see the above-mentioned ERG communication) which reflect the complexity of the problems being dealt with and the potential market specificities of the different member states. Thus, at present, there is not a significant degree of harmonization at European Union level in this matter.</p>
<i>Italy</i>	Not yet.
<i>France</i> (see Footnote 7)	It is sometimes difficult to locate the foreign providers of some of the services sold to French customers. Moreover, some foreign providers are found misusing French numbers that they obtained through a declared French operator. In this case, the operator to which the numbers were allocated is responsible for their use.

c) If so, what is the legal position on this matter in your country?

*Czech republic* If foreign providers want to offer VoIP services in Czech Republic, they must execute the same obligations as Czech providers (To notify the business, to public contract, to contribute to universal service fund, etc.).

*Finland* Public telecommunications is a trade subject to declaration, and operators of public telecommunications shall submit FICORA a notification of their operations. A telecommunications notification itself does not create any independent rights or obligations, but it is intended for helping FICORA in the supervision of telecommunications operators in the market. Also, the notification obligation does not apply to public telecommunications that are temporary in nature, aimed at a small audience or otherwise of minor significance. Consequently, FICORA may be a competent authority to supervise the activities of a telecommunications operator regardless of the notification, if the company is regarded to carry on public telecommunications in Finland or if the service has otherwise sufficient connection to Finland.

It is evident, that the Finnish Communications Market Act and the Act on the Protection of Privacy in Electronic Communications shall apply, if a telecommunications operator is established in Finland and offers services to Finnish users or users living in Finland. The Finnish communications legislation also applies to telecommunications equipment located in Finland regardless of the location of the company or where the services are provided.

In addition FICORA is a competent authority to supervise the use of numbers and identifiers granted by it. By its decision FICORA grants numbers and identifiers in accordance with the Communications Market Act and the Regulation on numbering including a numbering plan. In its Regulation on numbering, FICORA may also prescribe the purpose of use of a number and place other conditions for the use of a number as provided in the Act. The Finnish Communications Market Act and the Act on the Protection of Privacy in Electronic Communications apply to the numbers and identifiers granted to telecommunications operators by FICORA and to telecommunications operated by means of these numbers and identifiers regardless of the country where the service provider is established or the country in which the users of the service are located.

FICORA is also a competent authority to supervise the use of numbers and identifiers granted by it and communications services provided by means of them in case that a (Finnish) telecommunications operator in possession of the numbers has further relinquished subscriber numbers to a telecommunications operator established in some other state. FICORA's control or competence regarding a number granted by it is independent of the fact, who finally has relinquished the number to the user.

If the competence cannot be determined on the basis of the facts mentioned above, it can also be assessed considering the state to which the telecommunications operator has the closest connection. In the assessment it is possible to take account for instance the company's country of establishment, technical implementation of the services provided, the location of technical equipment and borders-crossing marketing of the services. It is to be noted that this list of criteria is not exhaustive, but rather serves as an example.

*Malta* The general principle is that the MCA exercises its jurisdiction on electronic communications networks and services provided in the Maltese territory.

<i>Cyprus</i>	The Cypriot regulation applies to all providers of electronic communications networks and services in Cyprus.
<i>Germany</i>	Foreign providers of telecommunication services who offer their services also in Germany are in principle obliged to follow the rules laid down in the German Telecommunications Act. Nevertheless if they have no seat or headquarters in Germany the enforcement of those rules in a foreign state is due to the sovereignty of every state dependent on an agreement on legal aid between Germany and the concerned state.
<i>UK</i>	We can look at infringement of community and domestic directives including investigation under our Enterprise Act 2002 Part 8.
<i>Switzerland</i>	Every operator offering service 2, 3 or 4 has to register with BAKOM and is so becoming a provider of public voice telephony. Consequently, also the VoIP-operators have to respect and fulfil the relevant obligations of the Telecommunication Law and Decrees.
<i>Slovenia</i>	The Slovenian regulation applies to all provisions of electronic communications networks and services in Slovenia.
<i>Denmark</i>	The Danish regulation applies to all provisions of electronic communications networks and services in Denmark.
<i>Bulgaria</i>	See above
<i>Austria</i>	See above
<i>Sweden</i>	Our national regulation applies to anyone concerning itself with the Swedish market. As such a foreign provider acting on the Swedish market would have to comply with Swedish national regulations. The ability to enforce those regulations is another matter.
<i>Greece</i>	See above
<i>Netherlands</i>	The Dutch regulation applies to all provisions of electronic communications networks and services in Netherlands.
<i>Norway</i>	Providers that offer others access to an electronic communications network or service in Norway are subject to Norwegian legislation. (In 2004 we made a memo where we discussed some relevant factors to consider when determining jurisdiction. A copy of this could be provided)
<i>Portugal</i>	See answer to the previous question.
<i>Italy</i>	Providers that offer electronic communications networks or services in Italy are subject to the Italian legislation.
<i>Ireland</i>	While national legislation applies to all providers of services, enforcement against a non resident entity would be problematic.
<i>France</i> (see Footnote 7)	Operators and service providers that provide an electronic communications service in France (meaning that the service can be used in France or by French customers) must be declared to ARCEP.