

***FINAL REPORT***

**The LICENSING  
of  
SATELLITE NETWORKS  
and SERVICES**



*This study has been prepared by ETO on behalf of ECTRA for the Commission of the European Union.*

*On 4 December 1997, this report was approved by ECTRA and it therefore reflects the general views of ECTRA on satellite network and service licensing. Comments on specific aspects from Portugal is included as an annex of the report.*

*Neither ECTRA members nor the Commission accept responsibility for the accuracy of the information contained herein.*

*This final report was sent to the EC on 6 February 1998.*

***Work order 48 315  
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## *Table of contents*

<i>Executive summary</i>	5
<b>Chapter 1-Presentation of the study</b>	<b>11</b>
<b>Chapter 2-Definitions and background: The existing situation</b>	<b>13</b>
2.1-Classification of entities for which authorisation may be required	14
2.1.1-The Space Segment Operator (SSO)	15
2.1.2-The Satellite Network Operator (SNO)	16
2.1.3-The Service Provider(SP)	17
2.1.4-The Subscriber	17
2.2-Definitions of satellite networks in Europe	18
2.2.1 Definition of Satellite Networks (SN)	18
2.2.2 Definition of sub-categories of Satellite Networks	19
2.3-National licensing regimes in Europe	21
2.3.1 Overview of national network licences	21
2.3.2 The earth station licences	22
2.3.3 Regulation of space segment	23
2.4-Licensing conditions for Satellite Networks	24
2.5-Other relevant elements of the licensing procedures	26
<b>Chapter 3-Fees applicable to Very Small Aperture Terminal and Satellite News Gathering</b>	<b>27</b>
3.1-Administrative costs	29
3.2-Co-ordination costs	30
3.3-Management costs	30
3.4-Amount of fees	31
3.5-Conclusions	31
<b>Chapter 4-Proposal for harmonised conditions and procedures for Satellite Networks</b>	<b>32</b>
4.1-Proposal for a harmonised list of licensing conditions	32
4.1.1 Common qualification conditions	33
4.1.2 Operating conditions of satellite networks	36
4.1.3 Conditions of earth stations licensing	40
4.1.4 Licensing conditions of land mobile earth stations	43
4.2 -A proposal for harmonised licensing procedures	44
4.2.1-Definition and analysis of licensing procedures	44
4.2.2-Proposal	47
4.2.3-Milestones	47
4.2.4-Selection	48
4.2.5-Co-ordination	48
4.3 -Other relevant elements of licensing procedures	49
4.3.1-Authorities which grant the licences	49
4.3.2-Duration of the licence	49
4.3.3-Fees	49
4.3.4-Sanctions	50
4.3.5-Appeal procedures	51
<b>Chapter 5-Conclusions</b>	<b>52</b>
5.1- ETO proposals	52
5.2- Areas for further studies and for which harmonisation is not necessary	55

***Annexes are presented in a separate document***

1.	<i>Annex 1 of the Work order No 48 315</i>	2
2.	<i>EU and US policies on the satellite telecommunications sector</i>	5
3.	<i>National satellite licensing regimes in CEPT countries</i>	9
4.	<i>Summary of the ERO studies on frequency aspects of VSAT and SNG</i>	25
5.	<i>Elements of the ERO study carried out for the EC on MSS</i>	27
6.	<i>Presentation and analysis of the licensing conditions of SN</i>	29
7.	<i>Licensing conditions annexed to the EU licensing directive</i>	46
8.	<i>ITU frequency co-ordination procedures</i>	49
9.	<i>Conclusions of the ETO study on S-PCS</i>	54
10.	<i>Lawful interception</i>	57
11.	<i>Tables on satellite licensing framework.</i>	59
12.	<i>Tables on satellite fee calculation</i>	64
13.	<i>Milestones Review Procedure</i>	71
14.	<i>Portugal's comments on the report</i>	73
15.	<i>Comments from the industry</i>	74
16.	<i>Elements of the Sirius report</i>	80

*This report has been written by Jean-Yves Montfort, ETO Director, with the kind participation of members of the ECTRA Project Team on Licensing, ERO experts, members of the ERC work group RR6 and from the EC.*



## EXECUTIVE SUMMARY

ETO has prepared this study on satellite networks and communication services on behalf of ECTRA for the European Commission. The purpose of the study is to define harmonised conditions and procedures for the authorisation of satellite networks other than S-PCS in order to facilitate the creation of an internal market for such networks.

S-PCS has been excluded due to the fact that ETO has already conducted a separate study on these satellite systems in 1995. No common position was reached within the CEPT in the case of the 1995 study, and results of the study were considered a basis for carrying out an ECTRA decision on the licensing of S-PCS which was adopted on 2 July 1997<sup>1</sup>. Two decisions were also adopted by ERC on the free circulation of terminal equipment and on the harmonised use of frequency spectrum for S-PCS. However, a specific feature of S-PCS is the allocation of frequency bands to global satellite systems. The proposals of this study on the licensing of satellite will therefore normally be applicable to S-PCS.

According to the work order issued by the European Commission to ETO, the justification for such a study lies in the fact that even though the European Union's Directives have defined a general framework for a common European approach to the licensing of telecommunications networks and services, at present, authorisations for such networks and services are not uniform throughout Europe. Existing authorisations are subject to national conditions and procedures that vary from country to country.

ETO has worked in collaboration with experts from the European Commission and from National Regulatory Authorities participating in the ECTRA project team and the ERC working group. These experts have discussed ETO's findings and proposals in detail. The result of this work, presented hereafter is included in the report, which was approved by ECTRA on 4 December 1997 as a basis for further discussion on the licensing of satellite networks. The report was sent to the Commission on 6 February 1998. The following ETO's proposals do not necessarily reflect the views of the European Commission.

- **Understanding the need for a separate licensing regime for satellite network operators and service providers**

The study is based on the assumption that telecommunications services should have a single licensing regime independent from the network used for their transmission. This has been agreed upon by CEPT administrations and is already the situation in a number of European countries. In consequence, satellite services do not need to be defined as a specific category of telecommunications services and it is proposed that their licensing regimes should be exactly the same as those existing for telecommunications services and be in conformance with the Licensing Directive 97/13. However, an exception remains in some countries concerning mobile communications, whose licensing regime is specific.

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<sup>1</sup> S-PCS operating within the bands 1610-1626.5 MHz, 2483.5-2500 MHz, 1980-2010 MHz and 2170-2200 MHz.

The study is therefore focused on the licensing of satellite networks for which a distinction has been made between general conditions common to most of the telecommunications services and networks, and radiocommunication conditions specific to the use of the radio frequency spectrum. The main issue which has been studied in the report is the licensing of satellite networks which includes the radio aspects. The licensing of Mobile is included in a separate study conducted by ETO for the EC.

ETO proposes to consider, within the satellite sector, a single category which is specific to the sector: "Satellite Network". ETO also provides additional or simplified conditions and procedures for Mobile Satellite Services, SNG and satellite networks (like VSAT) operating in exclusive frequency bands. Networks providing broadcasting services and services which are not exclusively telecommunications services, e.g. research and meteorological services, are outside the scope of this study.

**Satellite Network** is defined as a configuration of one or more satellites which provide(s) controlled radio transmission facilities and which interconnect(s) with earth stations. These networks consist, at the very least, in the establishment of transmission lines:

- i) between space segment and fixed earth stations which provide the link to the terrestrial public networks (feeder links),
- ii) between space segment and end user earth stations which may be fixed or mobile (service links).

One or more fixed earth stations may have the function of controlling the system and/or to interconnecting with other networks.

- **Identifying the party which is required to obtain authorisation**

A number of different entities are generally involved in the offering of telecommunications services using satellite technology. For licensing purposes, ETO proposes definitions of a certain number of entities in charge of specific functions: Space Segment Operator (SSO) for the provision of space segment, Satellite Network Operator (SNO) for operating the network, Service Providers (SP) for the provision of services, and Subscribers. ETO also proposes that the Satellite Network Operator (SNO) should be the only entity required to obtain a licence for the operating of satellite networks. However, the SSO may also have some network-operating functions, and in this case the differentiation with SNO may appear artificial. The choice between the SSO and the SNO should be made on the basis of licensing conditions and in particular operating conditions.

In most of the European countries, no authorisation is required for Space Segment Operators (SSO) and, therefore, ETO does not see any reason to propose the addition of such a procedure. Only one NRA is in charge of ITU notification and co-ordination procedures. These have already been applied on S-PCS. This means that SSO (global consortia) will not be required to obtain any authorisation in Europe. Authorisation will, nevertheless, be required for regional operators –the SNOs- in charge of the establishment of earth station, interconnection with other public networks and the provision of services in a region.

Service providers are entities which may be divided into two categories. First, entities responsible for the design and the provision of a service. Second, entities reselling services and/or transmission capacities.

As mentioned above, service providers of both categories will normally not be required to obtain any additional authorisation if they are authorised to offer the service in question through another network. SP classified as resellers will mainly have the same licensing regime as those providing GSM services, i.e. free regime.

- **Examining the practicalities of establishing a single licensing framework for satellite networks in Europe**

Following its analysis of the list of licensing conditions based on elements from various national licensing regimes, of the list annexed to the licensing directive, and of the lists established in previous studies, ETO proposes a harmonised list of licensing conditions for Satellite Networks which restricts the number of conditions imposed on them and which is divided into three categories:

### **Qualification conditions of Satellite Network Operators (SNO)**

Qualification conditions are conditions to be respected by the SNO in order to be authorised to operate satellite networks (pre-conditions). They are part of the licence and therefore cannot be modified.

The maximum level of conditions that may be imposed on an SNO for the purpose of qualifying for an authorisation should be:

- \* SNO identification: name, address, trading name, telephone number, name of contact person and business registration details<sup>2</sup>;
- \* Description of the service;
- \* Description of the system;
- \* Technical capabilities (public SN only)<sup>3</sup>;
- \* Financial viability (public SN only).

One open question remains on:

- \* Coverage for MSS regarding the situation in some countries.

For SNG, the list should be restricted to applicant identification and transmission means.

### **Operating conditions for satellite networks based on general telecommunications regulations**

Operating conditions are conditions or rules to comply with while operating the authorised network.

The conditions that may be imposed on an SN operator in terms of operating a network are listed below. No additional conditions should be imposed except conditions concerning Universal Service Obligations and conditions on interconnection of operators with Significant Market Power.

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<sup>2</sup> Within the EU, only one business registration in one of the EU countries is normally required for the whole EU territory. This registration is totally independent from the licensing registration and any confusion between them should be avoided.

<sup>3</sup> For S-PCS, these two conditions are the basis justifying the establishment of Milestones.

The harmonised list of operating conditions is:

- \* Respect of essential requirements,
- \* Agreement with satellite organisation,
- \* Restriction of provision of services for which exclusive rights exist (not applicable for SN not open to the public)
- \* Data protection, etc. specific to telecommunications (not applicable for SN not open to the public)
- \* War, defence and national security requirements,
- \* Information for users on demand,
- \* Access to numbers in the public numbering plan (not applicable for SN not open to the public).
- \* Interconnection rights (not applicable for SN not open to the public).

Specific attention should be put on lawful interception for MSS due to the absence of terrestrial equipment in most of the countries. This condition is normally part of the condition on national security.

None of the above-listed conditions is relevant for SNG.

**Earth station conditions based on radio-frequency regulation which include co-ordination and site clearance**

The following conditions are valid for all SNs:

- \* Station details
- \* Declaration of frequency bands assigned.

The following conditions are valid for SN with the exception of SNG.

- \* Integrity of the system;
- \* Documentation for type approval of equipment;

The following conditions are valid for SN with the exception of SNG and SN operating in exclusive bands.

- \* Provision of information required for ITU co-ordination,
- \* Aerial specification of main station for site clearance,
- \* Technical details on the antennas.

In order to ensure effective use of frequency resources some countries established Milestones (e.g. the US) which must be respected by applicants. This aims at avoiding the so-called “paper satellites” which freeze frequency resources. This also may allow the licensing of all applicants. CEPT has implemented such a procedure for S-PCS licensing. However CEPT only provides assistance and advice to NRAs which should decide on national authorisations.

In accordance with section 5 of the annex of the licensing directive, the above list of conditions should be considered without prejudice of any other legal conditions which are not specific to telecommunications.

**ETO proposes the following licensing procedures for the licensing of satellite network:**

- \* Individual licence authorising the provision of satellite networks (public and non-public),
- \* Registration of the additional earth stations of authorised satellite networks, when co-ordination and site clearance are not necessary or have been properly completed,
- \* Individual licence for additional earth station when registration is not possible,
- \* General Authorisation without registration for receive-only earth stations.
- \* General authorisation for land mobile earth stations ensuring their free circulation.

However, instead of individual licences, NRAs may adopt General authorisations with or without registration. In this case, NRAs cannot require qualification conditions and conditions on the effective use of frequencies.

ETO also recommends that NRAs should take into account the advice of the CEPT when granting licences to global or regional systems, e.g. the ERC/ECTRA decision establishing a Milestones Review Committee for co-ordination of the licensing of S-PCS within a certain number of CEPT countries.

Concerning terminal equipment, it should be noted that under the umbrella of ITU, an MoU is currently being prepared by NRAs globally in order to guarantee the free circulation of GMSS land mobile earth stations.

The ERO's report on MSS also includes studies on the regulatory regime to be developed in the future which will enable users of Mobile Satellite Services to carry and use their mobile satellite terminals anywhere in Europe, without frequency and administrative constraints. ERO concluded that general licences should be granted to these mobile terminals.

In conclusion, regarding the practicalities of network authorisation and terminal licensing, it should be said that the above proposals are quite similar to the licensing regime already in force in some European countries like Finland, France, Sweden and the United Kingdom. It should also be noted that the proposal is in conformance with the EU licensing directive 97/13.

- **Areas for further studies and areas for which harmonisations is not necessary**

Finally, ETO has identified several areas where harmonisation is not necessary or cannot be achieved in the immediate future.

No authorisation is required for Space Segment Operators (SSO) in most of the European countries and, therefore, harmonisation of this issue has not been deemed necessary.

When the scarcity of frequency resources imposes a limit on the number of licensees, there arises the need for a selection procedure among applicants.

However, the issue of implementing a selection procedure has not been studied in depth. At the moment, selection procedures have only been implemented for terrestrial mobile networks and not deemed necessary for satellite systems, even for new systems such as S-PCS/S-PCS. However, this will require further study.

The fees required for the licensing of satellite services are seen by operators as a constraint, and the amount to be paid is perceived as too high compared with the different costs on which they should be based. ETO has compiled information on this and has made calculations for five theoretical VSAT systems. These calculations show that harmonisation is needed with regard to this issue. ETO has proposed to study the issue in 1998 in order to provide information from all CEPT countries and to analyse the trends.

The scope of the study excludes frequency and numbering issues, the harmonisation of which is currently undertaken by ERC/ERO and ETO respectively in separate studies.

Co-ordination procedures have not been included in the study either. CEPT has established such a co-ordination for S-PCS which is the first case being considered at the European level. This includes the establishment of Milestones and a Milestones Review Committee. The establishment of an OSS procedure for all satellite networks is also under consideration within the CEPT.

Other systems are already planned and they will be more complex, may require more frequency bands, may use more satellites and earth stations, may be combined with fixed and mobile terrestrial networks, and may provide a wide range of services including video and broadcasting. This is a valid ground for the improvement of procedures of co-ordination.

## CHAPTER 1

### PRESENTATION OF THE STUDY

This study on Satellite networks and communication services has been prepared by ETO on behalf of ECTRA for the European Commission<sup>4</sup>. It has been commissioned as one of a series of independent studies aimed at proposing harmonised licensing regimes for those telecommunications services which have been liberalised in all Union countries in accordance with European Union Directives.

The purpose of this study is to define harmonised conditions and procedures for the authorisation of satellite networks and communication services other than S-PCS in order to facilitate the creation of an internal market for such services. This includes VSAT networks<sup>5</sup>, SNG<sup>6</sup> and MSS<sup>7</sup>.

The work assigned to ETO is as follows:

- (1) to identify different services and/or service elements, within the category of services covered by the subject of this work order that have to be distinguished between with regard to authorisations;
- (2) to co-ordinate the results with ERC/ERO which have been mandated to establish the harmonised conditions for the use of the relevant frequency bands, and to integrate these results in the proposed harmonised conditions;
- (3) to propose harmonised licensing conditions as well as harmonised procedures for a first set of services or service elements;
- (4) to identify areas where harmonisation cannot be achieved in the immediate future or where harmonisation is not necessary for the creation of an internal market.

Part of the studies necessary to establish this report was carried out by the consulting company SIRIUS, Montpellier, France (Elements of the Sirius report are included in annex 16). This report is therefore partly based on the findings of the investigations conducted by this company on behalf of ETO and also partly based on the contributions received in 1997 from national experts participating in the ECTRA PT on Licensing and from the experts of the European Commission.

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<sup>4</sup> Work order is attached in annex 1

<sup>5</sup> Very Small Aperture Terminal

<sup>6</sup> Satellite News Gathering

<sup>7</sup> Mobile Satellite Services

The interim reports were discussed with the Commission and with the ECTRA Project Team on Licensing and Declaration Procedures, in order to check the information regarding national licensing situations, to reach an agreement on proposals for definitions of entities involved as well as services to be studied, and to agree on proposals for harmonised list of licensing conditions and for harmonised licensing procedures.

After the discussions with experts mentioned above, it was decided that services should have the the same licensing regime whatever is the network used for their transmission. In consequence the study is focussed on the licensing of satellite networks.

It was also decided to consider a single category of network called "Satellite Network" as defined in section 2.2.1. In addition the report identified three sub-categories for which additional or simplified conditions and procedures are proposed. The three sub-categories are "Mobile Satellite Services", "Satellite networks using exclusive frequency bands" and "SNG".

This report also includes an analysis of fees. A summary of the ERO reports on MSS, VSAT and SNG dealing with frequency and terminal aspects and a description of the EC and US policies have been annexed to this report.

The third interim report has been presented to the relevant working group of the ERC (WG RR6), to the PTL and to the EC in early December 1996. A drafting group has met in early January in order to simplify the presentation of the report. The final version was sent to the EC, PTL and ERC WGRR6 in February.

The modified version of this third interim report was studied by the PTL on 17 February and presented to ECTRA plenary on 11 March in order to discuss some open issues and to obtain comments from countries wanting to stress their views on specific points of the report.

ETO organised a workshop on 16 October 1997 to present the proposals contained in the third interim report and to obtain comments from the representatives of operators, service providers and users. Their comments are presented in chapter 5 of the final report.

Additional modifications have been introduced in the draft final report in order to take into account the evolution of national licensing regimes of satellite sector and also in order to take into account progress made on the co-ordination of licensing procedures of S-PCS, which provides an example of a possible way to co-ordinate the licensing of satellite networks. The licensing of services may also be done through the OSS procedure established by ETO for a certain number of services and for voice telephony in mid-1998.

The draft final report was sent to ECTRA members in November 1997

The final report was approved by the ECTRA plenary on 4 December 1997. The approved final report took into account the comments received during the workshop from the representatives of operators, service providers and users. It was sent to the European Commission on 6 February 1998.

## CHAPTER 2

### DEFINITIONS AND BACKGROUND: THE EXISTING SITUATION

The report deals mainly on satellite networks<sup>8</sup>, which include VSAT, SNG and MSS. Satellite networks may be either simple satellite links or complex systems. Their licensing regimes include several aspects such as general conditions common to almost all telecommunications networks and specific radiocommunications conditions dealing with the assignment of frequency resources.

In addition, it should be noted that in most of the countries licensing regimes also differ depending on whether the networks are publicly or privately operated. No specific licensing regime has been implemented on S-PCS in any of the CEPT countries included in the study. This confirms the fact that the results of the study are applicable to S-PCS.

As mentioned in chapter one, services transmitted through satellite networks should have the same licensing regime as services transmitted through other networks. This means that no additional study is deemed necessary on services. The survey of national licensing regimes shows that this separation has been done in all the countries which have recently adopted a new licensing regime parallel to the liberalisation of the satellite domaine. In some other countries the network licence automatically includes the authorisation of services without any additional condition.

Mobile Satellite Systems are generally regulated in most of the CEPT countries as mobile systems. Therefore, the licensing regime proposed for MSS may be modified by the findings contained in another study undertaken by ETO for the European Commission – the study on Mobile communications, whose report should be finalised by June 1998.

Satellite systems are composed of satellites and earth stations for which regulations are established at different level. Satellites must only apply international rules (i.e. ITU rules) and earth stations must apply national legislation in accordance with EU policy and international rules – i.e. ITU rules (for the countries involved). Licensing regimes therefore only deal with earth station licensing.

This study focuses on the licensing of satellite networks. The licensing of satellite services is the same as those of services provided through terrestrial networks. Proposals have already been made for a first group of services and further proposals will be studied later on for voice telephony.

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<sup>8</sup> with the exception of Satellite Personal Communication Services (S-PCS) which were studied in another report carried out by ETO for the European Commission (work order no 48 314) in March 1996

The licensing of satellite networks may include the establishment of a “Milestones” which aims to ensure the effective use of frequency spectrum. The co-ordination of corresponding procedures within Europe may be done through a “Milestones Review Committee”. An example of such a procedure is provided by the MRC established by ECTRA and ERC for S-PCS authorisation in CEPT countries. Annex 13 gives a presentation of the MRC procedure.

In this chapter, ETO identifies entities which may require authorisation. This chapter also presents the existing definitions of satellite networks and proposes harmonised definitions of networks for which licensing conditions and procedures will be proposed in the following chapters of the report. The section on licensing regimes is partly based on the results of a study undertaken by Sirius for ETO.

Description of EU policy on satellite networks and services is presented in annex 2 of this report. Description of national licensing regimes<sup>9</sup> on satellite systems or VSAT<sup>10</sup> are given in annex 3, and description on licensing conditions in annex 6.

## **2.1 - Classification of entities for which authorisation may be required**

A number of different entities are involved in the offering of telecommunications services using satellite technology. Having analysed the different possible systems which are known at the moment, ETO proposes to define Space Segment Operators (SSO), Satellite Network Operators, Service Providers and Subscribers. A single company can be in charge of the activities of several entities.

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<sup>9</sup> Austria, Belgium, Croatia, Cyprus, Denmark, Finland, France, Germany, Ireland, Italy, Latvia, Luxembourg, Malta, the Netherlands, Norway, Portugal, Slovenia, Spain, Sweden and Switzerland, the UK

<sup>10</sup> Information on the licensing regime of VSAT and SNG will be available on the ETO database, the address of which is “<http://www.eto.dk>”.

These entities are the following:

Entities involved	Services	Examples	Authorisation regime
<b>Space Segment Operator (SSO)</b>	<b>Space segment provision</b>	1) Iridium 2)INTELSAT	National notification to ITU (orbital position and co-ordination) National legislation on Space issues
<b>Satellite Network Operator (SNO)</b> (which includes gateway operator)	<b>Satellite Network (SN)</b> First group of network: -VSAT -SNG -MSS	1)o.tel.o 2)Belgacom	Harmonised licensing conditions and procedures to be proposed by ETO to ECTRA and the EC
<b>Service Provider (SP)</b> (which generates services without its own infrastructure or which resells services)	<b>Telecommunications services</b> (example of services included: VAS, Voice-Telephony, Data, Reselling of transmission facilities and services)	1)Retailers 2)MCI	The same licensing regimes must apply to services provided by SN and by other networks.
<b>Subscriber</b>	<b>Service access</b> All services must be accessed by relevant terminal equipment connected at the termination point of the network (fixed or mobile) and provision of services requires contracts between subscriber and SP even by electronic means.	1) and 2) Individual subscribers Hotel chain	The licensing regime of the terminal equipment which includes both type approval and frequency licence (if relevant) in accordance with EC legislation and ERC decisions (if any).

### 2.1.1 The Space Segment Operator (SSO)

Traditionally, satellite systems used for offering telecommunications services were operated by either Intergovernmental Satellite Organisations (ISO) e.g. EUTELSAT or National Satellite Organisations (NSO) e.g. HISPASAT. Since in the past, only satellite services offered by ISOs and NSOs were authorised, national authorities which are “Parties” of these ISO/NSOs did not implement detailed regulation and sometimes did not establish any regulation when the member of the ISO/NSO was a monopoly.

ETO proposes to define SSO as the entity which is responsible for the establishment and operation of one or more space stations (and possibly for providing space segment).

### 2.1.2 The Satellite Network Operator (SNO)

The Satellite Network Operator is the entity which has obtained space segment capacity and which is in charge of the transmission and routing of telecommunications services between the termination points of the satellite network in question. This entity may be either a company representing the SSO's interests in a region, or an entity independent from the SSO.

An SNO also generates telecommunications services and provides these services either through service providers or directly to subscribers by means of satellite transmission. SNO will be responsible for the establishment and operation of gateways, the purpose of which is to control the network and to provide interconnection with other networks.

ETO proposes to define SNOs as entities which are responsible, within a certain area, for the control of a configuration of one or more satellites which provide(s) radio transmission facilities and which interconnect(s) with earth stations. These networks consist, at the very least, in the establishment of transmission lines:

- i) between space segment and fixed earth stations which provide the link to the terrestrial public networks (feeder links),
- ii) between space segment and end user earth stations which may be fixed or mobile (service links).

### 2.1.3 The Service Provider (SP)

The service provider provides telecommunications services to subscribers. The SP may also generate the service by himself or resale services. However, the SP does not own the infrastructure.

ETO proposes to define SP as the entity which is responsible within a certain territory for the provision of telecommunication services to subscribers. The services involved e.g. VAS, data services, voice telephony and the reselling of these services.

The authorisation regime for SPs is the licensing regime applicable to the corresponding services provided on fixed or mobile terrestrial networks. ETO has carried out two studies for the EC on some of these services; one on Bearer Data Services, and a second on Other Liberalised Services (OLS), which included Value Added Services and Services Not Provided to the Public. Voice Telephony (VT) is not included in the category of OLS and, at present, no study has been undertaken by ETO on the licensing of this service.

This definition is not used in the following parts of the report which deals with satellite networks.

### 2.1.4 The Subscriber

Service providers provide services to subscribers connected at a termination point of the relevant network. The subscriber is therefore the entity which has contracted with the SP. The term subscriber should not be confused with End-User which is any person using services -not necessarily a subscriber.

ETO proposes to define subscriber as a person, a company or a group of people and companies located at a termination point of a network and which has/have subscribed to the services provided by an SP.

The termination point of a satellite network is normally an earth station, which may belong to the subscriber, the SP or the SNO. When the entity owning the earth station is the subscriber, e.g.: a VSAT small antenna or MSS mobile terminal, the only authorisation required for these earth stations is a radio licence; an individual service licence is not required in European countries. Therefore, this issue is studied in section 2.4.3 on licensing regimes for earth stations.

Concerning receive-only earth stations, a licence is not required and no conditions apply for this equipment, unless the earth station is connected to a network. This is a result of existing EU policy on the liberalisation of terminal equipment.

This definition is not used in the following parts of the report which deals with satellite networks.

## 2.2 - Definitions of satellite networks in Europe

As an introductory remark, it is worth mentioning that satellite networks are generally not defined in detail in national telecommunications regulation.

In ITU<sup>11</sup> terminology, satellite services are defined on the basis of the frequency bands used. These definitions therefore provide a classification of frequency bands rather than precise definitions of telecommunications services or networks.

The EC directive 94/46/EC of 13 October 1994 (mentioned in section 2.3.1 of this report) defines both satellite services and satellite network services. In order to avoid any confusion between services and networks this report focuses on telecommunication satellite networks only and services are left out.

ETO proposes to consider a single category in this report which is “Satellite Network”(SN), and also to indicate specific conditions or procedures for three sub-categories.

The first is Mobile Satellite Services<sup>12</sup> due to the fact that mobile earth stations could be used in any country where the service is available.

The second is SN operating in exclusive frequency bands such as VSAT<sup>13</sup> in the 14.00-14.25 MHz band, for which the licensing regime may be simplified.

The third is SNG, for which licence should be granted for a very short period of time.

### 2.2.1 Definition of Satellite Networks (SN)

The following definition of SN proposed by ETO is based on the definition of the Commission directive 94/46/EC of 13 October 1994 and includes concepts defined in ITU rules, such as feeder links and service links.

ETO proposes to define SN as a configuration of one or more satellites which provide(s) controlled radio transmission facilities and which interconnect(s) with earth stations. These networks consist, at the very least, in the establishment of transmission lines:

- i) between space segment and fixed earth stations which provide the link to the terrestrial public networks (feeder links),
- ii) between space segment and end user earth stations which may be fixed or mobile (service links).

One or more fixed earth stations may have the function of controlling the system and/or to interconnecting with other networks.

<sup>11</sup>International Telecommunications Union

<sup>12</sup> ERO undertook a study on frequency aspect of MSS including terminals for the EC (see annex 5)

<sup>13</sup> ERO undertook a study on frequency aspect of VSAT and SNG for the EC (see annex 4)

## 2.2.2 Definitions of sub-categories of SN

### a) Definition of MSS

The definition of MSS includes S-PCS as a sub-category of MSS. The definition also includes services and networks provided by intergovernmental satellite organisations like INMARSAT, EUTELSAT. Authorisations are required to set up and operate earth stations for land mobile services and aeronautical services.

In the future some MSS will probably be combined with fixed and/or mobile terrestrial services. Such projects are called UMTS and IMT 2000 (International Mobile Telecommunications). No definitions, with regard to these future systems, exist at present.

In order to define Mobile Satellite Network services it should first be necessary to identify existing definitions of equivalent services. MSS (Mobile Satellite Service) has been defined by ITU. It appears from the ITU Radio Regulations, chapter 1, section 3.8, that a Mobile Satellite Service is “a radiocommunications service between mobile earth stations and one or more space stations, or between space stations used by this service; or between mobile earth stations by means of one or more space stations. This service may also include feeder links necessary for its operation.”

The definition of the categories of services referred to in this section needs to take into account that any kind of telecommunications services may be provided and that the specificity of MSS is the fact that terminals are mobile and transmission made through satellites. It is therefore proposed to adopt a definition which is as close as possible to the ITU definition. The part of the ITU definition on radiocommunications between space stations was deleted because it is not a service but an element of the network. The last part is also deleted because it is a comments rather than a real part of the definition.

MSS are radiocommunications services between personal mobile earth stations (terminals) and one or more space stations, or between mobile earth stations by means of one or more space stations.

## b) SN operating in exclusive frequency bands<sup>14</sup>

This sub-category should be defined with regard to frequency bands. However it should be noted that exclusive bands have been assigned to VSAT<sup>15</sup> and SNG and that a number of ETSI Standards have been adopted<sup>16</sup>. The Satellite Earth Stations and Systems (SES) committee continues to issue standards in relation to VSATs, SNG terminals, TV Receive Only (TVRO) terminals and Land Mobiles Earth Stations operating in various frequency bands.

These standards are directly applicable to VSAT and SNG operations in the 11/12/14 GHz frequency bands. A list of these standards is provided by the ERO report on these issues, a copy of which is found in annex 4 of this report.

The existing MoU on VSAT and SNG between France, Germany, the Netherlands and the United Kingdom is restricted to services using frequency bands between 14.00 to 14.25 GHz for uplinks. These VSAT and SNG belong therefore to the subcategory of SN operating in exclusive band.

In its study, ERO also considered exclusive frequency bands for VSAT and SNG to be the 14.00 to 14.25 GHz band and that further capacity could be obtained from the 14.25 to 14.50 GHz band which, at the moment, is shared with fixed services.

On 1<sup>st</sup> July 1997, ERC adopted a decision on the harmonised use of frequency spectrum for Satellite Personal Communications Services (S-PCS) operating within the bands 1610-1626.5 MHz, 2483.5-2500 MHz, 1980-2010 MHz and 2170-2200 MHz. With the exception of the band 1613.8-1626.5 MHz which has been allocated on a secondary basis, all the other bands have been allocated by the WARC-92 on a primary basis.

## c) Definition of SNG

The definition of SNG as adopted by ITU is:

*“Temporary and occasional transmission on short notice of television or sound for broadcasting purposes, using highly portable or transportable uplink earth stations operating in the framework of the fixed-satellite service.*

*The definition of the equipment is that it should be capable of uplinking the video programme with its associated sound or sound programme signals, and capable of providing two-way co-ordination (communication) circuits. The equipment may provide for data transmission and should be capable of being set up and operated by a crew of no more than two people within a reasonably short time (for example, 1 hour).*

<sup>14</sup> Frequency bands allocated on a primary basis.

<sup>15</sup> A definition of VSAT - Very Small Aperture Terminal - has not been found in ITU regulations<sup>15</sup>, nor does any common definition exist in the telecommunications legislation at a European Union level. ERO (European Radiocommunications Office) has conducted a study on VSAT and SNG. For the purpose of its study, the ERO adopted the following understanding of the term VSAT: “For the purpose of this study the term VSAT is used here to describe earth stations of a diameter less than about 3.8 meters, mainly used for data communications between fixed locations of a permanent nature (i.e. branches of an organisation). They are often served by a central hub station. VSAT systems can be unidirectional (data distribution) or two way. It is possible to have a mesh-network, where VSATs interact with each other on an equal basis without a hub station.

<sup>16</sup> This part of the report on ETSI standards has been picked up from the ERO report already mentioned in the ETO report.

*Transportable earth stations must also comply with the SNG requirements when logistics dictate the use of such systems and the systems meet the basic functional characteristics of the SNG systems. SNG sound may also be operated in the mobile-satellite service.”<sup>17</sup>*

A European Union definition of SNG has not been identified. In addition to the ETSI standards mentioned on VSATs, an SNG standard also exists. Again, only one national definition - the French - has been found: “It is called terrestrial station for temporary video lines a transmitting/receiving station temporarily used for transmitting images and sounds for different applications such as video transmission and radio broadcasting programmes”.

As for VSAT, the existing MoU does not provide a definition of SNG. It should be noted that the licence granted to SNG is a radio licence authorising the use of terminal equipment and therefore frequencies in a specific band. The licence is generally granted on a temporary basis and in countries where a long term licence is granted, notification is required before using such an authorisation. For the purpose of the ERO-study, the ITU definition was used.

For the purpose of this report, ETO proposes to define SNG as:

“Temporary and occasional transmission on short notice of television or sound for broadcasting purposes, using highly portable or transportable uplink earth stations, operating normally in specific frequency bands”.

## 2.3 - National licensing regimes in Europe

Authorisations for satellite services and networks may be required for several aspects such as radio aspects, terminal equipment, establishment of networks and provision of services. Regulation on the space segment also exists. Only aspects of authorisation of satellite networks including radio aspects of earth stations and terminal equipment are presented in this section.

### 2.3.1 Overview of national network licences

The licensing regimes of satellite networks in CEPT countries vary significantly. Most of the countries have separated the licensing of services from those of networks and therefore they do not have specific licensing conditions for services provided through satellite networks. Two exceptions have been found; these are Denmark and the United Kingdom, both of which adopted a class licence regime for satellite services. It seems also to be the case in Italy where separate licences are required for services and networks. However it is not specified whether the licensing regime for services is different when they are transmitted through satellite networks. Several countries adopted a licensing regime for networks which automatically includes the licensing of services.

<sup>17</sup> Recommendation ITU-R SNG.770-1

This is the case in Germany, Luxembourg and France at least. This means that services have a free regime when they are offered by an authorised network operator in these countries.

Concerning the licensing of satellite networks two approaches have been identified. In some countries, a single licence is granted to a network which may include several earth stations -this is the case in France, Germany, Italy and the Netherlands. In other countries, an individual licence is required for each earth station. Almost all countries have established separate licensing regimes for public and non-public networks.

The main purpose of the satellite network licensing is therefore the licensing of earth stations. An exception has been found in the UK licensing regime where the licensing of satellite networks and earth stations are separated.

### **2.3.2 The earth station licences**

The licensing of earth stations is based on radiocommunications legislation. In most cases, frequency co-ordination and a site clearance procedure is required in order to avoid harmful interference, except when SN are provided in exclusive frequency bands. Some earth stations are interconnected with other networks and for this reason specific rights and obligations exist which are included in individual licences. These earth stations are called "Gateways".

#### **a) procedures**

Several scenarios exist, as mentioned before in section 2.3.1.

- An individual licence is required for each earth station;
- An individual licence is required for a group of earth stations belonging to the same system. In this case no additional licence is required for new earth stations, nevertheless some NRAs require notifications to be given;
- A general authorisation is granted to land mobile earth stations.

This issue has also been dealt with in studies carried out by ERO for the European Commission on VSAT, SNG and MSS, the results of which are presented in annexes 4 and 5. For more details, please refer to these studies.

For the licensing of S-PCS, ERC and ECTRA adopted in early July two decisions establishing an MRC procedure in order to control the effective development of satellite network and therefore the effective use of the frequency spectrum. No reference to Milestones has been found in any of the CEPT countries. However it may be implicitly included in the conditions stating that the applicant should have financial viability and technical capabilities.

#### **b) site and frequency clearance**

SNOs are required to adhere to a number of procedures which include site clearance and frequency clearance. Site clearance procedures are used by some countries to ensure the protection of airports and other sensitive installations by disallowing SN operations nearby. Frequency clearance is required to ensure that services sharing the same frequency allocation can co-exist.

Such clearance is achieved through national or international co-ordination procedures. A description of ITU procedures for satellites is given in annex 8. In addition to site/frequency clearance, NRAs may also request type approval of terminal equipment which is expected to be based on the CTRs.

### **c) mobile earth stations**

Since terminal type approval and terminal licensing may both be required for MSS land mobile earth stations, it is necessary to make a distinction between them.

Type approval gives the manufacturer the right to sell terminals and guarantees the free circulation of these terminals to users within the European Economic Area. Type approval must be carried out in application of European Directives 91/263/EEC and 93/97/EEC.

A licence gives users the right to use the terminal and in particular frequency spectrum. It would be suitable to reach agreement on the free use of terminals all around Europe. This could be done through the mutual recognition of all licences granted to terminal equipment.

Three different situations may occur; in some countries the licensing procedure integrates the type approval procedure, in other countries the two procedures are clearly distinguished between, and in some others, licences do not exist and type approval is the only procedure required. A harmonised procedure is therefore needed for terminal equipment with regard to both type approval and licences.

With regard to mobile terminals, it is necessary to obtain permission to use these terminals in foreign countries in which the service concerned has been authorised. The free use of approved terminals has already been accepted in Europe for GSM mobile phones. The ERC has adopted several recommendations concerning the free circulation and use of INMARSAT-C, INMARSAT-M, EUTELTRACS, satellite paging and Traksat terminal equipment. A recent survey shows that only recommendations on EUTELTRACS and INMARSAT C terminals have been implemented in a large number of countries.

In early July, ERC adopted a decision on the free circulation, use and licensing of mobile earth stations of satellite personal communications services (S-PCS).

A common position needs to be established with regard to the fact that it is possible for some terminals to have a multi-mode transmission (MSS and GSM, DECT...). Nevertheless, at this stage, no general rules exist and the issue should be considered and negotiated for each mobile system.

### **2.3.3 Regulation of space segment**

As indicated in the ETO report on S-PCS, the consultancies organised by ERO and ETO on the authorisation regimes of satellite operators in European countries show that none of the CEPT countries require a licence for satellite infrastructures (space stations).

They recognise the results of the ITU frequency co-ordination procedure which must be either satisfactorily accomplished or only under study in the framework of the ITU procedures. It should be noted that the extremely long delay in ITU procedures does not give Regulators the possibility of waiting for the final results of ITU co-ordination<sup>18</sup>.

National Telecommunications Administration representing their Government are responsible for giving notification to ITU and for co-ordination procedures. Operational agreement are, however, often established through direct negotiations between operators. When notifying a satellite system, the National Administration in practice gives a de facto authorisation to the system in question. Only one country per satellite system is involved in such a possible authorisation requirement (description of ITU procedures is provided in annex 8).

## 2.4 - Licensing conditions for Satellite Networks (SN)

In previous studies undertaken by ETO for the EC on Bearer Data Services and Other Liberalised Services, the licensing regimes analysed are based on two kinds of conditions which have to be respected by service providers: qualification conditions and operating conditions. ETO's analysis of existing national licensing regimes for satellites networks has lead to the same conclusion.

As mentioned in the above section, the entities involved are SNOs.

The three condition categories are defined as following:

1. Qualification conditions, meaning conditions to be respected by the SNO in order to be authorised to establish the network. Two sets of conditions have been identified in this group, SNO qualifications and information requested from the SNO.
2. Operating conditions, meaning conditions/rules to be complied with while operating the authorised network and/or individual earth station. These conditions are based on general telecommunication regulation independent from the technology used. They are composed of a set of Obligations and Rights.
3. Earth stations conditions based on the radio aspect of radiocommunication regulation. These conditions may be applicable to a satellite network or an individual earth station.

Detailed presentation of these conditions and details of the analyses are provided in annex 6 of the report, the result of which is presented in chapter 4. However, a presentation of the three categories is given in the following table. It should be noted that milestone conditions have not been found in the list of licensing conditions. However, the justification for licensing conditions lies in the application of the two following qualification conditions: technical capability and financial viability, and in the effective use of frequency spectrum which is an operating condition.

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<sup>18</sup> The co-ordination is done between NRAs, not by the ITU.

The analysis of the conditions takes into account the list of conditions annexed to the licensing directive 97/13. However the categories of conditions differ from the licensing directive annex to the ETO report.

<b>Qualification conditions of SNO</b>	<b>Operating conditions on SN</b>	<b>Earth station conditions</b>
<b><i>a) Information requested</i></b>	<b><i>a) Essential requirements</i></b>	
SNO identification	Security of network operation	Technical details on satellite used
Description of service	Maintenance of network integrity	Station details
Transmission means and connection to PSTN	Interoperability of services	Documentation for type approval of equipment
Description of the system	Data protection	Integrity of the system
Tariffs and supply conditions	Environment and country planning	Technical information on the antennas
Market information		Transmission power
Agreement with satellite organisation	<b><i>b) Other operating conditions</i></b>	Location of earth stations
Conditions of permanence, viability and quality of services	Restrictions due to exclusive rights	Classification of network (<15kbit/s, >15 kbit/s)
<b><i>b) SNO's qualification</i></b>	Competition rules and fair trading	Protection of human beings from electromagnetic fields
Nationality/ownership	Data and privacy protection/confidentiality	Assigned frequency bands
Registration	War defence and national security	Access to space segment
Technical capabilities	Consumer protection	Frame structure
Financial viability	Information to users	Aerial specifications of earth stations
Accounting rules	Access to leased lines/PSTN	Documentation of valid trade licence
No debts to the state	Access to numbers	Station details such as geographical co-ordinates
Effective use of frequencies and avoidance of harmful interference (essential requirement)	Interconnection (rights and obligations)	

## **2.5 - Other relevant elements of licensing procedures**

### **Authorities which grant licences**

As mentioned earlier, a service licence and a radio licence are normally required for the provision of services provided by means of satellite transmission capacity. The authorities granting the two different licences are in some countries the same body and in other countries separate bodies or separate entities within the same body.

In general, the responsibility of granting licences lies with the ministry responsible for telecommunications. However, it is often the case that this responsibility is delegated to agencies which handle all the practical work of issuing licences.

### **Duration of the licence**

In many European countries, licences have an indefinite duration. In some countries, however, licences are issued for limited periods, varying from 5 to 25 years (see details in annex 3 on the survey on national licensing regimes based on Sirius report).

### **Fees applicable to licences**

Fees can be a major issue or obstacle for the provision of telecommunications service. In some national regulations, fees are a pre-condition, meaning that fees must be paid in order to consider the application as valid. In other countries, it may be an operating condition -meaning that if annual fees are not paid, authorisation can be withdrawn. This has been found to be a particularly important issue concerning VSAT and SNG. A separate chapter has therefore been established for the analysis of fees for VSAT and SNG (chapter 3).

### **Sanctions**

In general, a licence can be withdrawn in the case of serious or continuous disrespect of certain conditions. These conditions vary from country to country. In general, NRAs allow service providers a certain time to bring their service into compliance with the conditions in question. If, after this time the service provider continues to breach the requirements, the licence can be revoked. Other sanctions, such as fines and penalties, have also been found in some countries.

### **Appeal procedures**

Each European country has a procedure for appealing against a decision made by the body issuing licences. In many countries, these procedures allow the service provider to make a first appeal to one body and, if necessary, a second appeal against the decision of this first body. In some countries the appeal body is the ministry itself, in other countries separate appeal bodies and administrative courts should be contacted. Usually, it is also possible to bring the cases before a court of justice.

## CHAPTER 3

### FEES APPLICABLE TO VSAT

The studies conducted for the purpose of establishing this report show that the fees charged to VSAT providers by national administrations deserve special attention in this report. It is still relevant to deal with fees in general in this report, since the differences in fees constitute an issue that may well have the impact of a competition restriction on network-operators and service providers.

Fee calculation includes fees required for the provision of services and the operation of networks. However in most of the countries no fee is required for the provision of services. An exception is voice telephony, for which information is missing at the moment. Fees for services are specifically required in Italy and Portugal. In the UK, those satellite networks that require to be connected to the PSTN are granted an individual licence under the Telecommunications Act, for which a fee has to be paid; those that do not need to be connected to the PSTN can operate under a class licence, for which there is no fee.

In the following table, it should be noted that the analysis is based on entirely hypothetical VSAT networks. The purpose of such an analysis is to illustrate the impact fees may have on the cost of a VSAT network. It will also illustrate whether harmonisation of fees is possible and feasible.

The characteristics of five different VSAT networks used for fee calculation are the following:

Characteristics	1	2	3	4	5
National/European (hub in Germany and 2 earth stations in 8 countries)	Nat	Nat	Nat	Eur	Nat
Transmission: bi-directional (Yes/No)	Yes	No	Yes	Yes	Yes
Transmission capacity: 64 kbit/s	Yes	Yes	Yes	Yes	Yes
Bandwidth between 200kHz and 1MHz	Yes	Yes	Yes	Yes	Yes
Number of earth stations	10	10	10	14	100
Data service	Yes	Yes	Yes	Yes	Yes
Number of satellites: 1	Yes	Yes	Yes	Yes	Yes
With connection to the PSTN (Yes/No)	Yes	No	No	No	Yes
Co-ordination needed (Yes/No)	No	No	Yes	No	No

Details on the calculation of fees for these five hypothetical VSAT networks are presented in annex 12 of this report. The table below presents only the total amount of fees (initial and yearly fees) for the seven countries used in this section. This facilitates comparisons and analysis presented after the table.

<b>Country</b>	<b>1st ex</b> 10 trans earth st with PSTN con no co-ord.	<b>2nd ex</b> 10 receive-o e.s. no PSTN con no co-ord	<b>3rd ex</b> 10 trans earth st no PSTN con with co-ord.	<b>4th ex</b> European network 14 trans earth st.	<b>5th ex</b> 100 trans e. st with PSTN con no co-ord.
<b>Belgium</b>	4,916 3,848	4,916 776	4,916 3,848		49,160 38,480
<b>Denmark</b>	2,891 1,652	2,891 1,652	2,891 1,652		28,910 16,520
<b>Finland</b>	0 681	0 0	261/1,112 166		0 6,810
<b>France</b>	7,780 2,334	7,780 2,334	7,780 2,334		7,780 9,336
<b>Germany</b>	13,325 533	7,995 0	8,528 0		61,295 5,330
<b>Italy</b>	9,000 6,000	8,500 6,000	10,500 6,000		21,000 15,000
<b>The Netherlands</b>	5,415 4,750	5,415 4,750	6,365 4,750		48,165 47,500
<b>Portugal</b>	17,075 12,500	13,295 10,250	20,375 12,500		19,875 35,000
<b>United Kingdom</b>	13,341 2,442	6,105 1,221	6,105 1,221		13,341 4,884
<b>Europe</b>				20,163 5,743	

In accordance with articles 6 and 11 of the Licensing Directive, fees and charges for general authorisation and individual licences should “cover administrative costs incurred in the issue, management, control and enforcement of the authorisation scheme”. In addition article 11 indicate that “when scarce resources are to be used, NRAs may impose charges which reflect the need to ensure the optimal use of these resources.” Administrative costs and charges linked to the granting of authorisation for Satellite networks may be divided into the following categories:

- i- Initial administrative costs linked to the processing of individual applications. These costs arise only in the first year and depend on the importance of the network (one-way or two way, number of station/terminals);
- ii- Costs of co-ordination procedures at national and international levels. These costs occur only in the first year and depend on the number of stations;
- iii- Permanent administrative costs linked to the management, control and enforcement of the authorisation scheme. These costs are yearly costs and should mainly be imposed on individual licensees; and
- iv- Costs of the management of the frequency spectrum, which should ensure the optimal use of frequency resources, which depend on the bandwidth and should be paid annually;

The total amount of the fees and charges also seems to be an element which may impede the establishment of small VSAT systems.

### 3.1. Initial administrative costs

On the basis of the first example (the most complex system mentioned in the report which includes connection to the PSTN and transmission) it should be noted that initial fees which include administrative costs and the first annual fees vary from 2891 ECUs in Denmark to 17,000 ECUs in Portugal.

If annual fees are deducted from the initial fee it is possible to obtain an indication of administrative fees, which vary from 12,800 ECUs in Germany (10,900 ECUs in UK) to 730 in the Netherlands (1200 in Belgium and Denmark), with an intermediate level of 6000 ECUs in France and Portugal. The gap between the above-mentioned countries is undoubtedly too large and should be reduced.

On the basis of the second example, which is the least complex (no connection with the PSTN, receive-only earth stations and no co-ordination), the initial fee remains the same in five countries (Bel, DK, Fr, It, NL) and decreases significantly in the other three countries, especially in the UK and Germany. Taking into account the differences between these two examples the administrative costs should have decreased in all countries.

In these five countries, the calculation of administrative costs should be reviewed in order to allow a gradation of fees with regard to the complexity of systems in question. This would avoid large disadvantages arising for small VSAT systems.

On the basis of the fourth example, which is an international system with a hub station in Germany and rather simple (no connection to the PSTN, no co-ordination and only two earth stations in each country), administrative costs remain high only in France and Germany. In the other countries, there is either no administrative cost (UK and Finland) or it is very cheap (250 ECUS in Belgium and Denmark and 700 ECUs in the Netherlands).

Based on the above examples, ETO concludes that, in general, initial fees are not based on administrative costs and do not take into account the diversity of VSAT systems.

### 3.2. Co-ordination costs

Specific fees for co-ordination have been found in Finland, Germany Italy, Portugal and the Netherlands (see third example). This means that administrative fees required by the other countries may include co-ordination costs, even if co-ordination is not required for the granting of the licence in question. In Finland, the cost is 500 FIM/95 ECUs per hour with a maximum of 10 hours (maximum fees are therefore 950 ECUs). In addition, Finland also requires a yearly fee of 520 FIM/100 ECUs per transmitting terminal. Germany and Italy require a single fee of 3000 DM/1600 ECUs and 3 M lira/1,500 ECUS respectively for international co-ordination. The Netherlands requires a single fee of 2000 NLG/950 ECUs. Portugal requires a fee of 330 ECUs per station.

The gap between the fees required by these countries is rather low. Unfortunately, it is not possible to compare the above figures with those of other countries where co-ordination is not taken into account in the calculation of fees. It should also be noted that only Finland requires yearly fees for co-ordination, the justification of which is rather unclear.

An estimation of the cost of co-ordination, based on information from the three countries studied, is a once-off payment of 1000 ECUs.

Fees may be required even after the initial licence has been granted, if additional earth stations are installed and if co-ordination procedure is required for them.

### 3.3. Permanent administrative and frequency management costs

Taking the figures of the first example into account, it can be seen that annual fees vary from 533 ECUs in Germany to 4,750 ECUs in the Netherlands and 12,500 ECUs in Portugal, with three countries adopting an intermediate level of around 2,300 ECUs ( UK, France) and 1652 in Denmark.

Fees decrease only in a few countries in the second and third examples: Belgium, Finland, Germany and UK. In the UK, the difference is due to connection with the PSTN -which is twice as much as the annual fees of systems which are not connected to the PSTN. This is because satellite networks that connect to the PSTN are subject to an individual licensing regime in the UK whereas those that do not are subject to a class licence; the administrative costs incurred in the issue, management, control and enforcement of individual licences are naturally greater than for class licences.

Permanent administrative and frequency management costs may therefore be used for administrative tasks, spectrum management and connection with PSTN. It should be noted that the fees remain at the same level in three countries: Denmark, France and the Netherlands. It should also be noted that only the Netherlands and Portugal base their calculation of yearly fees on the bandwidth, which seems to be the most relevant parameter for the calculation of fees linked with frequency management.

This calculation adopted by the Netherlands and Portugal may also mean that annual fees are only justified for frequency management purposes and no other permanent administrative costs are required. In Portugal a large part of annual fees (10,000 ECUS) are required for the control of the licensing conditions. The same situation exists in Italy, nevertheless fees are almost half of Portugal's fees (6,000 ECUs).

### **3.4. Amount of fees**

Only 4 countries – France, Italy, Portugal and UK - take into account the size of the VSAT network when calculating fees. Even if, for small VSAT, two of these 4 countries (FR and UK) are classified in the category of, “most costly countries”, they are the cheapest ones for big systems, along with Finland which remains in all cases the cheapest country.

Italy is in an intermediate situation concerning initial fees, but Italy remains on a rather high level concerning annual fees. As for yearly fees, Portugal is the most expensive, except for big networks for which fees are at a lower level than in Belgium and the Netherlands.

As it has been previously mentioned, fees should be based on administrative, co-ordination and management costs. These costs are not exactly proportional to the number of earth stations in question and the main part of the cost is either fixed costs or depends on the frequency bandwidth. In consequence, a majority of countries should review their calculation procedure in order to decrease the fees for big VSAT systems which include around 100 earth stations.

### **3.5. Conclusions**

The figures presented in this chapter were calculated for hypothetical networks and services. They demonstrate that fee structures diverge significantly from EU policy and also from one country to another. The implementation of the licensing directive may therefore require Member States to review their policies and procedures in setting fees, in order to comply with articles 6 and 11. However no conclusions can be drawn regarding the amount of fees in comparison to administrative costs and frequency management costs.

## CHAPTER 4

### PROPOSAL for HARMONISED CONDITIONS AND PROCEDURES for SATELLITE NETWORK

The aim of this chapter is to present a framework of harmonised conditions and procedures for the licensing of SN provided within Europe by SNO<sup>19</sup>.

The proposals take into accounts comments received from the Industry (annex 15), from expert of the ECTRA PT on Licensing and from the EC.

For services, ETO proposes that the same rules for authorisation should apply as those provided through fixed networks. This means that the report proposes that no specific licensing conditions and procedures should be proposed for services. This is also valid for the co-ordination of the granting of national authorisation for which the OSS may be used.

The framework of the licensing regime for SNO is based on the findings of chapter 2 and the harmonised conditions have been selected from the list in annex 6<sup>20</sup>, also taking into account the list of conditions in the EU directive on licensing (see annex 7).

It should be noted that some conditions may be specific to public networks and not applicable to non-public networks. The harmonised list of conditions and procedures should be understood as the maximum list of conditions. This means that some countries may decide to adopt a more restricted list of conditions or a simpler procedure.

#### 4.1. Proposal for a harmonised list of licensing conditions

As has been shown in annex 6 of this report, a very large number of licensing conditions apply on the provision of SN, both the radio and general telecommunication aspects. An analysis of whether these conditions should be reflected in a future harmonised environment for SN is also given in annex 6.

Interconnection is not included in this list due to the fact that interconnection rights and obligations depend on the category of operators and service providers. Article 4 of the 97/33/EC directive states that “ organisations authorised to provide public telecommunications networks and/or publicly available telecommunications services as set out in annex II (of the directive) shall have a right and, when requested by organisations in that category, an obligation to negotiate interconnection with each other”. It is not sure that SN will be included in this category. If SN is excluded from this category, no rights and obligations will apply.

<sup>19</sup> Annex 11 presents tables of the satellite licensing framework

<sup>20</sup> Annex 6 contains the presentation and the analysis of possible licensing conditions. This part of the study has been presented in a separate annex rather than in the chapter 4 due to the length of the text and the repetition with the presentation of the list of conditions proposed by ETO.

Apart from the category defined in annex II of the directive, operators with a significant market power have additional obligations. However, SNOs will probably not reach such a power and such additional obligations may not be imposed on them. This last issue is part of a study undertaken by ETO for the EU on regulating operators having a Significant Market Power (SMP) which will be delivered by the end of 1997.

Universal Service obligations are not included in this list either due to the fact that they may be required for specific categories of operators and service providers, and that they differ from country to country. However it should be noted that satellite networks and services normally cover a whole national territory.

This section merely presents the conditions that have been selected and proposed for inclusion in the harmonised list of conditions.

For the purpose of this study, conditions have been divided into three categories, which are:

- 1- Qualification conditions requested from any applicant whatever the required authorisation is;
- 2- Operating conditions on satellite networks based on telecommunication regulation;
- 3- Earth station conditions based on radio-frequency regulation which include co-ordination and site clearance conditions.

As stated in the annex of the licensing directive, the list of conditions proposed by ETO in this report shall be understood without prejudice to:

- any other legal conditions which are not specific to the telecommunications sector<sup>21</sup>;
- measures taken by Member States in accordance with public interest requirements recognised by the Treaty, in particular articles 36 and 56, specifically in relation to public morality, public security, including the investigation of criminal activities, and public policy.

#### **4.1.1. Qualification Conditions (QC)**

Qualification conditions are information and conditions requested from any applicant asking for an authorisation to provide a Satellite Network or for the installation of an earth station.

This information should be provided by and conditions imposed on SNOs, only if a registration, a licence, a co-ordination or a site clearance procedure is required. In particular, when the authorisation procedure is a free regime, no qualification condition can be required. A licence may be an individual licence or a class licence; in the case of the latter, information is required if controls are organised a posteriori.

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<sup>21</sup> See in annex the position of the Portuguese Administration on this issue.

### a) Applicant identification

It is evident that, when a licensing procedure is involved, the NRA needs to be able to identify network operators. The information required is: name, trading name, address, telephone number, name of contact person, business registration details. The status of the applicant (POA; RPOA) may be asked;

**ETO therefore proposes that applicant identification, as described above, be included in the harmonised list of licensing conditions that may be imposed for the provision of SN.**

### b) Indication of the service

The type of the service can also be an important piece of information for identifying the licensing regime and the transmission means to be used (space and earth station). However, the information should not include too many details and should allow the identification of the licensing regime. This information cannot be used for restricting services intended to be offered.

With SN it is in theory possible to provide any kind of telecommunications service, and different procedures and additional regulations may apply depending on the kind of service provided and whether the service is provided to the public or not. It should be noted that in accordance with regulation on the licensing of services on terrestrial networks, it is necessary to give details on the nature and character of the service when it is a Premium Rate Service (share revenue). It is also necessary to provide information on the management of CUGs when services are offered to members of CUGs.

**ETO therefore proposes that indication of the service, as described above, be included in the harmonised list of licensing conditions that may be imposed for the provision of SN.**

### c) Transmission means and connection to the PSTN

This condition may be important for establishing whether the network is open to the public due to the fact that regulatory regimes may differ regarding public access. For EU countries which have obtained the authorisation to delay the liberalisation of voice telephony and for ECEC countries, this condition is also important for establishing whether the service provider is infringing upon the exclusive rights of PTOs to provide public voice telephony. Information on radio links is also important in order to know if co-ordination and site clearance are required. Information should include technical details of the satellite to be used.

The level of details of the provided information should correspond to the justification above-mentioned. However this condition may be included in the following conditions on description of the system.

**ETO therefore proposes that this condition, as described above, be included in the licensing conditions mentioned below.**

#### d) Description of the system

This conditions is approximatively the same than the previous one. The only additional information included in description of the system is information on the functions of earth stations: (one-way or two-way), main station or hub and the other earth stations. A list of addresses identifying the location of transmitting earth stations is required. Location of additional earth station may be given after they start to operate. However minor modification of the system should normally not require a new authorisation.

**ETO therefore proposes that description of the system, as described above, be included in the harmonised list of licensing conditions that may be imposed on providers of SN.**

#### e) Technical capabilities

A justification for imposing conditions related to the technical capabilities of the operators could be to assure the users that the operator is indeed able to provide the network facilities on the terms he has marketed the service on. This is mainly relevant for networks open to the public.

Another justification for imposing this condition on public network operators is the fact that specific rights and obligations are attached to the authorisation of public networks. Based on this condition and the following one on financial viability, milestones may be established by NRAs in order to monitor compliance with the initial declaration on the time schedule for the development of the satellite network.

**For this reason, it is proposed that conditions relating to technical capabilities be included in the harmonised list of licensing conditions of SN for public networks only.**

#### f) Economic structure and financial viability

The justification for imposing this condition on operators is the same reasons as those mentioned with regard to technical capabilities. It appears that in some countries it is a general provision applying to the conduct of all business activities.

**For this reason, it is proposed that conditions relating to financial viability be included in the harmonised list of licensing conditions of SN for public networks only.**

#### g) Situation of MSS, SN in exclusive bands and SNG:

##### MSS

Coverage is an additional condition which has not been included in the above harmonised list of licensing conditions. However it could be reintroduced for Mobile Satellite Services in some countries, like Norway, where it is justified.

##### SN in exclusive bands

No specificity has been found in common qualification conditions concerning SN operating in exclusive bands.

**SNG**

Nevertheless, with regard to SNG conditions, only information on applicant identification and on transmission means is required.

**Qualification conditions of SNO:**

The maximum level of conditions that may be imposed on an SNO for the purpose of qualifying for an authorisation should be:

- \* SNO identification: name, address, trading name, telephone number, name of contact person and business registration details;
- \* Description of the service;
- \* Description of the system;
- \* Technical capabilities (public SN only);
- \* Financial viability (public SN only).

Two open questions remain on:

- \* Coverage for MSS regarding the situation in some countries.

For SNG, the list should be restricted to applicant identification and transmission means.

The three first conditions are not included in the licensing directive annex. However these conditions are pieces of information required for any kind of authorisation and are therefore legitimate. The conditions four and five (technical capability and financial availability) are included in section 4.8 of the above-mentioned annex.

#### **4.1.2 Operating conditions of satellite networks based on telecommunication regulation.**

The conditions mentioned below may be required irrespective of the licensing regime required.

##### **a) Essential requirements**

The observance of essential requirements is one of the fundamental principles of Community Law (licensing Directive). One of the newest applicable essential requirements is specifically related to telecommunications services transmitted by radio means, namely the effective use of the frequency spectrum and the avoidance of harmful interference between radio-based telecommunications systems and other space-based or terrestrial, technical systems.

Further work on this issue will be carried out by ETO in the work order on Essential Requirements agreed upon with the EC, the results of which should be presented in the final report addressed to the Commission in December 1997. ETO proposes that Essential Requirements should be considered as operating conditions -with the exception of the effective use of frequency spectrum, which must be a qualification condition.

**ETO proposes that the observance of essential requirements be included in the harmonised list of operating licensing conditions that may be imposed for the provision of SN -with the exception of the effective use of frequency spectrum, which is a qualification condition.**

**b) Agreement with the satellite organisation**

An agreement to obtain access to space capacity is a condition without which it would be meaningless to offer the service concerned. The question is therefore to decide whether this condition should be considered a qualification condition or an operating condition.

Taking into account the fact that access to space capacity must be a right of all licensees irrespective of the chosen SSO, this condition should be an operating condition. In addition to this, the space segment market is a competitive market and all licensees would normally obtain space capacity.

**ETO proposes that agreement with the satellite organisation be included in the harmonised list of conditions that may be imposed for the provision of SN.**

**c) Restriction on the provision of services for which exclusive rights exist (e.g. voice telephony)**

Since a majority of CEPT countries have not yet withdrawn exclusive rights on all telecommunication services such as the provision of public voice telephony, it seems appropriate to include restriction of provision of services in question in these countries in the harmonised list of SN provision licensing conditions.

The restrictions may also include the provision of services by a specific category of entities, e.g. provision of broadcast services to the home by telecommunications operators.

However, it should be noted that this condition is not valid for voice telephony in and between EEA countries after the 1 January 1998 -except in a few countries which have obtained the authorisation from the EC to delay such competition.

**ETO therefore proposes to include the restriction on provision of services for which exclusive rights exist (voice telephony) in the harmonised list of licensing conditions that may be imposed on providers of SN.**

**d) Data protection, privacy protection and confidentiality**

Two directives (one adopted and one for which a common position has been adopted by the Council) - a general and a telecommunications specific directive - constitute the regulation on this issue at a European level. The telecommunications specific directive will have to be implemented on a national level through telecommunications regulation.

**ETO therefore proposes that such conditions be included in the harmonised list of licensing conditions that may be imposed on providers of SN.**

### e) War, defence and national security requirements

In some exceptional cases, due to war, defence and national security requirements, a majority of countries adopted specific conditions concerning the use of and access to the network, as well as concerning information or transmitted messages. This also refers to legal interception in connection with, for instance, investigation of criminal offences. In some countries, the issues are regulated in telecommunications-specific regulation and/or in the licences. In other countries, these issues are regulated in other legislation only.

**Due to the importance of the substance of these conditions, ETO proposes that conditions on war, defence, national security and legal interception issues be included in the harmonised list of licensing conditions that may be imposed on SN.**

### f) Information for users

The information that NRAs request from operators for the purpose of the telecommunications licence is more or less the same that needs to be given by operators to users in some countries (service provider's contact point, description of the service, levels of permanence, availability and quality, availability of standards for specific terminals that can be used in the system, tariffs, delivery terms, supply conditions).

This information should be provided at the request of users<sup>22</sup> in a manner which is easily accessible and intelligible. Since the information is to a large extent already compiled by the service provider, it would not represent an undue burden to impose the provision of this information to users at their request, on service providers.

**ETO therefore proposes that the provision of information to users at their request be included in the harmonised list of licensing conditions that may be imposed on SN.**

### g) Access to numbers

Access to numbers in the public numbering plan may be of importance to the operators, including those based on satellite transmission capacity, to the extent that the services are connected to the public networks. It could be important for many reasons, i.e. user-friendliness, efficient establishment of a competitive environment, portability, national and international routing etc. SNO should have the right to obtain blocks of numbers, just like other operators of fixed networks in order to allocate individual numbers to its clients. Allocation of numbers should respect certain rules. It should be noted that common rules are currently under study by ETO.

**It is therefore proposed that access to numbers be included in the harmonised list of licensing conditions that may be imposed as a right given to SNOs.**

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<sup>22</sup> Except in Denmark where information is obligatory provided to users.

**h) Situation of SN not open to the public:**

The harmonised list of conditions may be simplified for SN not open to the public. The conditions that may be deleted are the following:

- \* restriction of provision of voice telephony;
- \* data protection;
- \* access to numbers.

**i) Situation of MSS, SN in exclusive bands and SNG:****MSS**

Within the list of operating conditions proposed for SN, chapter 2 stressed that lawful interception needs particular attention, even though it is a condition valid for all networks and normally included in the condition of national security.

In general, lawful interception is an issue that is regulated through specific laws in almost all countries. These laws require that licensees provide interception means. This issue is analysed separately in annex 10. The reason it is mentioned in this chapter is because NRAs are responsible for verifying that legal interception is possible when granting a licence; legal interception must therefore be considered as a condition of operating networks and failure to comply with this condition may lead to the withdrawal of an authorisation.

The harmonised list of operating conditions should underline that this condition on lawful interception has specific interest for MSS.

**SN in exclusive bands**

No specificity has been found in operating conditions concerning SN operating in exclusive bands.

**SNG**

It should also be noted that none of these conditions are relevant for SNG.

### **Conclusions on operating conditions of SN:**

The conditions that may be imposed on an SN operator in terms of operating a network are listed below. No additional conditions should be imposed except maybe conditions concerning Universal Service Obligations and interconnection rights and obligations. Conditions on interconnection of operators with Significant Market Power probably will not apply for SN. :

The harmonised list of operating conditions is:

- \* Respect of essential requirements,
- \* Agreement with satellite organisation,
- \* Restriction of provision of services for which exclusive rights exist (not applicable for SN not open to the public)
- \* Data protection etc. specific to telecommunications (not applicable for SN not open to the public)
- \* War, defence and national security requirements (including lawful interception),
- \* Information for users on demand,
- \* Access to numbers in the public numbering plan (not applicable for SN not open to the public).\*
- \* Interconnection rights and obligations (not applicable for SN not open to the public)

Conditions that should be stressed for MSS:

- \* Lawful interception.

None of the above-listed conditions is relevant for SNG.

All the conditions are included in the licensing directive annex, with the exception of restriction of provision of services which is however included in the EU policy.

### **4.1.3 - Conditions of earth stations licensing based on radio-frequency regulations which include co-ordination and site clearance conditions.**

Information can be requested from SNOs, who can be companies or end-users. This information should be provided only if a registration, a licence, a co-ordination or a site clearance procedure is required. The conditions proposed for earth station operators are based on radiocommunications regulations. This issue was studied by ERO in its report for the EC, conclusions of which are presented in annex 5.

#### **a) Station details (manufacturer/model/type/size)**

The information is necessary in order to identify the station.

**ETO therefore proposes that station details be included in the harmonised list of licensing conditions that may be imposed for earth station licence.**

**b) Integrity of the satellite system (fixed terrestrial earth stations).**

The description of measures that will be taken to protect the integrity of the system (availability of the staff at the station and/or control centre, redundancy of sub-systems) is required in many countries. The reason for this is that discrepancies regarding the system in question will disturb other systems. Guarantees should therefore be obtained before the earth station starts to operate.

**ETO therefore proposes that such conditions be included in the harmonised list of licensing conditions that may be imposed for earth station licence.**

**c) Documentation for type approval of equipment**

Type approval is mandatory in almost all European countries and should therefore be included in the harmonised list of conditions.

This condition includes protection of human beings, which is sometimes identified separately in some national regulations.

**ETO therefore proposes that such conditions be included in the harmonised list of licensing conditions that may be imposed for earth station licence.**

**d) Assigned frequency bands (transmitted and received) and bandwidths**

This information is necessary in order to determine the relevant procedure and the part of the spectrum used by the system in question.

**ETO therefore proposes that such conditions be included in the harmonised list of licensing conditions that may be imposed for earth station licence.**

**e) Co-ordination.**

ITU rules provide a list of information required for co-ordination procedures which includes:

- i) General information: identity of the network and orbital data;
- ii) Characteristics in the satellite receiving direction (for each satellite antenna beam): receiving space station and associated transmitting earth or space stations;
- iii) Characteristics in the satellite transmitting direction (for each satellite antenna beam): transmitting space station and associated receiving earth or space stations;
- iv) Overall link characteristics: relationship between up and down link frequencies, transmission gain and equivalent satellite noise temperature for each link.
- v) Station details such as geographical co-ordinates.

This is essential information necessary to determine whether or not co-ordination is needed at national or international level. ITU has also established forms of notices in the series “AP3/II” with accompanying notes explaining how to complete the relevant forms. The above-mentioned conditions are already harmonised by ITU and no further study seems necessary.

**f) Site clearance for earth stations**

Concerning site clearance, which is a national procedure, the following information is required:

- i) Technical details of satellites
- ii) Location of earth stations
- iii) Assigned frequency bands
- iv) Aerial specifications of main station
- v) Geographical co-ordinates

Some of the above information is already required for co-ordination or operating conditions. The only new information concerns aerial specification of the main station.

**g) Other conditions on co-ordination and site clearance identified in annex 9 which are not mentioned above**

- i) Technical details on the antennas

Other conditions are mentioned in the annex 9 on co-ordination and site clearance but they are included in above-mentioned conditions.

**h) Situation of MSS, SN in exclusive bands and SNG:**

**MSS**

All the conditions apply on MSS. No justification has been found either to limit or to complete the list of conditions established for SN.

**SN in exclusive bands**

Co-ordination and site clearance, and technical details on the antennas are not relevant for SN operating in exclusive bands if earth station are located out of specific areas which require frequency protection such as airport areas.

**SNG**

It should also be noted that only two of these conditions are relevant for SNG:

- i) station details, the location and the period of time for which the SNG station may be used,
- j) declaration of frequency band assigned.

### **Conditions of earth stations licensing which include co-ordination and site clearance**

The following conditions are valid for all SNs:

- \* Station details
- \* Declaration of frequency bands assigned.

The following conditions are valid for SN with the exception of SNG.

- \* Integrity of the system;
- \* Documentation for type approval of equipment;

The following conditions are valid for SN with the exception of SNG and SN operating in exclusive bands.

- \* Provision of information required for ITU co-ordination,
- \* Aerial specification of main station for site clearance,
- \* Technical details on the antennas.

All the conditions are included in the annex of the licensing directive.

#### **4.1.4 Licensing conditions of land mobile earth stations**

The conditions listed in annex 6 section 4 are all valid for MSS terminals and should be included in their licensing. This issue is currently studied by ERO and ERC intends to adopt a decision on the licensing and the free circulation of land mobile earth stations. The list is given below as a proposal and is divided into conditions imposed by NRAs to terminal users and on their behalf to manufacturers and information required by NRAs from operators and to be provided to users:

##### **A-Conditions:**

- Efficient use of frequency bands,
- Availability of terminal specifications,
- Emergency calls,
- Data protection,
- Provision of information on the description of the system.

##### **B-Information:**

- Coverage,
- Frequency bands,
- Interconnection,

With regard to the users of mobile terminals, ETO strongly supports the idea of individual licences not being required for MSS mobile terminals. The licensing regime depends on the regulation in force in each country and can therefore be either a free regime or a general licence regime.

An example of such principle is the ERC decision adopted in early July on the free circulation, use and licensing of mobile earth stations of satellite personal communications services (S-PCS).

## 4.2 - A proposal for harmonised licensing procedures

Licensing procedures, defined in the EU directive, are analysed in this section and proposal have been made, regarding the most suitable ones. However some of these procedures, e.g. individual licence, may be preceded by either a milestones or a selection procedure -also analysed in this section.

### 4.2.1 Definition and analysis of licensing procedures.

The EU directive on the licensing of telecommunications network and services, defines three licensing procedures:

- individual licence,
- general authorisation with notification,
- general authorisation without notification.

It should be noted that the general authorisation without notification referred to above does in fact include class licence and free regime.

The individual licence regime represents - from the point of view of the operators and service provider - the most complicated and the free regime the simplest procedure.

This chapter deals only with the procedure that satellite networks operators have to follow in order to obtain an authorisation.

In the aforementioned licensing directive, it is indicated that:

*1. Member States may issue individual licences for the following purposes only:*

- (a) to allow the licensee access to radio frequencies or numbers;*
- (b) to give the licensee particular rights with regard to access to public or private land;*

*(c) to impose obligations and requirements on the licensee relating to the mandatory provision of publicly available telecommunications services and/or public telecommunications networks, including obligations under ONP legislation and/or which require the licensee to provide universal service;*

*(d) to impose specific obligations, in accordance with Community competition rules, where the licensee has significant market power, as defined in Article 4(3) of the Interconnection Directive in relation to the provision of public telecommunications networks and publicly available telecommunications services.*

*2. Notwithstanding paragraph 1, the provision of voice telephony services, the establishment and provision of public telecommunications networks as well as other networks involving the use of radio frequencies may be subject to individual licences.*

An individual licence may only be required by the NRAs if one of the four above-listed conditions or one of the service or network referred above, relates to the SNO. Individual licence should be the only procedure by which NRAs can refuse an authorisation. This being the case, the reason for refusal should be communicated to the applicant. The licensing conditions and procedures along with all other necessary details must be known in advance in order to ensure a transparent and fair procedure.

At the moment, three of the above-mentioned justifications seem relevant for the authorisation of SN provision:

**Litra a** applies to the SNO's licence, granting him the right to use the frequency spectrum. For receive-only earth stations, litra a is not valid.

**Litra c and paragraph 2** may also be considered when operators offer public networks.

Individual licences may therefore be required for the provision of SN, except for non-public SN composed with receive-only earth stations (one way). However, general authorisation may also be adopted for some categories of SNs. As mentioned before, in that case no qualification conditions can be required. Registration, which is a sub-category of general authorisation, is a possible procedure for all SN –including receive-only earth stations. In that case also no qualification conditions can be required. Nevertheless, ETO's opinion is that no registration is justified for receive-only earth stations<sup>23</sup>.

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<sup>23</sup> See position of the Portuguese Administration in annex.

The provision of SN may be made subject to the three procedures mentioned in the EC directive. The definitions of two of these three procedures, registration and general authorisation, have already been adopted in two previous ETO reports for the EC on BDS and OLS. ETO proposes to keep the same definitions and to add a definition of individual licence. These definitions are the following:

### **1 - General authorisation**

A regime where the service provider need not take any action and need not await any decision from the NRA before launching the service.

The legal form which regulates this authorisation consists of a set of conditions (rights and obligation) which can be found in general law, in telecommunications regulations, in a single document like a class licence order; or in all three. Breaches of these conditions may force the NRA to impose sanctions or to withdraw the permission to provide the service.

### **2 - Registration**

This is a regime which requires that the service provider make a declaration to the NRA of his intention to provide the service. In this declaration, the applicant has to provide the NRA with information based on a list, clearly stated and published in advance. This list should be drawn from the “harmonised list of information” that an NRA can request. The service provider can start to provide the service four<sup>24</sup> weeks after the declaration at the latest. The legal form which regulates this authorisation consists of conditions (rights and obligations) set in general law and telecommunications regulations. Breaches of these conditions may lead to NRAs imposing sanctions or withdrawing permission to provide the service.

### **3 - Individual Licence**

This is a regime which requires that the service provider send an individual application to the NRA, asking for an individual authorisation to provide the service or to operate the earth station. In this application form, the applicant has to provide the NRA with information based on a list, clearly stated and published in advance. This list should be drawn from the “harmonised list of information” that an NRA can request. The service provider or the earth station operator can begin providing the service immediately after the individual licence is granted. The legal form which regulates this authorisation consists of conditions (rights and obligations) set in general law and telecommunications regulation. Breaches of these conditions may lead to NRAs imposing sanctions or withdrawing permission to provide the service.

<sup>24</sup> The waiting period that the service provider is required to observe before he may start providing the service will be established in accordance with the waiting period provided for notification in the “European Parliament and Council Directive on a common framework for general authorisations and individual licences in the field of telecommunications”, when adopted.

## 4.2.2 Proposal

The conclusions proposed by ETO with regard to harmonised licensing procedures are based on the EU directives, the analysis presented in the ETO report and the general trend of licencing regimes in EU countries. However, the proposal is a maximum level of authorisation procedures. CEPT countries may therefore adopt a general authorisation instead of an individual licence if they consider the former more appropriate.

The conclusions are the following:

### **Proposed licensing procedures for SNOs:**

- \* Individual licence authorising the provision of satellite networks (public and non-public),
- \* Registration of the additional earth stations of authorised satellite networks, when co-ordination and site clearance are not necessary or have been properly completed,
- \* Individual licence for additional earth station when registration is not possible,
- \* General Authorisation without registration for receive-only earth stations.
- \* General authorisation for land mobile earth stations ensuring their free circulation.

## 4.2.3 Milestones

The granting of scarce radio spectrum by the NRAs requires guarantees from the applicants for authorisations. These guarantees are difficult to obtain in case of complex satellite systems which may require a long period of time for their implementation, in particular when several satellites must be launched for offering the service. In some cases, licence is requested in advance in order to attract investors.

NRAs, therefore, need to obtain guarantees that the system will really be launched and that the time schedule for its implementation respected. In order to obtain this, it is necessary to have applicant-proposed milestones which must be agreed upon by the NRA involved.

In some countries, the NRA grants an experimental authorisation or a temporary licence. In other countries, the licence may be cancelled if the applicant fails to meet the approved milestones.

Concerning systems operating in several countries, NRAs should agree on common milestones and co-ordinate the checking of these milestones. This is already being done for S-PCS by a Milestones Review Committee established by the CEPT.

This procedure may be proposed for all complex systems that require a long period of time for implementation.

#### 4.2.4 Selection

One of the issues which is not studied under SN but which needs to be mentioned in connection with MSS, is the selection of applicants in the case of limited frequency resources. The issue has been mentioned in the ETO study on S-PCS<sup>25</sup>. Even though S-PCS is excluded from the study, other systems, included in the category of MSS, may be confronted with limited frequency resources. It is not yet certain whether a selection procedure will be necessary for MSS; despite this uncertainty, a procedure, including the criteria involved, should be presented.

Several options exist for the selection of applicants, such as “Auction”, “Beauty Contest” and “First Come, First Served”.

The establishment of such procedures involves the setting up of a selection committee and the designation of an authority allowed to decide upon the selection of applicants.

As of yet, no rule has been adopted within the Union and the decision therefore remains in the hands of NRAs. That means that the above-mentioned committee can only adopt recommendations. That means also that the committee should include representatives from all NRAs involved in the selection.

Criteria for the selection of applicants have been proposed in the ETO study on S-PCS; the same criteria can also be proposed for MSS as a basis for further discussion whenever it appears that such a procedure is needed:

**ETO’s proposal for the selection of applicants is:**

Selection will only be organised if frequency resources are limited.

If a selection is organised, the criteria involved may be the following:

- \* Coverage,
- \* Financial status,
- \* Proof of the efficient use of frequency bands,
- \* Data protection guarantees,
- \* Relevant experience and technical expertise,
- \* Availability of terminal standards,
- \* Provision of emergency calls through 112 prefix.

#### 4.2.5 Co-ordination

Co-ordination procedures have not been included in the study. CEPT has established such a co-ordination for S-PCS. This includes the establishment of Milestones and a milestones review committee. The establishment of an OSS procedure for the entire satellite sector is also under consideration within CEPT.

<sup>25</sup> Presentation of the results of this ETO study for the EC is given in annex 9

## 4.3 Other relevant elements of licensing procedures

### 4.3.1 Authorities which grant the licences

As has been described earlier, in some countries several authorisations may be required by separate bodies. This is the case in France, Germany and the UK,

A majority of the operators interviewed for the purpose of establishing this report have stated that it can be difficult for operators to establish the correct point of contact within the national administrations. However, the decision on how to organise national administrations is a national matter.

Having said this, NRAs should consider the possibility of giving more concise information to applicants on where to address their requests for authorisations. When separate bodies are involved, it might be considered that only one of them be made the recipient of notifications, applications for frequencies etc. and that these bodies co-ordinate further administrative procedures involved in the processing of these documents.

**ETO proposes to establish a database with access via the INTERNET to the contact points involved in the licensing of satellite networks for all aspects covered by their licensing.**

### 4.3.2 Duration of the licence

Taking into account the fact that ETO has proposed that licences for SN should be granted on the same basis as licences for terrestrial networks, it seems appropriate that a long period of validity of licences ought to apply.

For individual licence, the duration of the licence varies from 5 to 25 years in the four countries which signed the MoU on VSAT-SNG licensing. A minimum duration of 10 years could therefore be recommended in European countries.

**ETO proposes that a 10 year's duration could be recommended as a minimum duration for an individual licence.**

### 4.3.3 Fees

As has been shown in chapter 3, the fees applicable to VSAT vary significantly from country to country. Most of the fees are connected to the radio licence, i.e. fees for earth stations and for frequency co-ordination.

Fees would not apply in the case of a general authorisation, because the NRA does not have any expense which is linked to the individual licensee. In the case of registration, the NRA has a licensee identification and would therefore be able to charge him a fee. Such a fee should only be calculated on the basis of the actual administrative costs incurred by the implementation of the registration regime.

For reasons of transparency, the detailed criteria upon which calculations are based should be published and should be based solely on administrative costs. This calculation principle would be in conformity with the licensing directive. For individual licences, fees should take into account the costs of co-ordination procedures and management of the frequency spectrum. A new ETO study will be undertaken in 1998 for the European Commission in order to reach a common view on fee structure and levels in European countries.

A general remark concerning fees is that harmonisation will be difficult to obtain due to the fact that, in a large number of countries, this issue is not the responsibility of NRAs. Nevertheless, recommendations could be proposed in order to progressively organise the convergence of fee structures and levels.

The administrative costs in each country could for example, cover the salaries and over-head costs. It is clear that such costs are far from uniform in all European countries. Furthermore in some countries NRAs are not free to choose the criteria on which calculations are based. In certain countries, it may be stated in general public administration regulation that any activity performed must be financed by the users of the systems and that the fees must cover all actual administrative costs, no less and no more. In such countries, harmonisation of fees would mean non-conformity with the basic principles of their non-telecommunications legislation.

**In conclusion, due to the fact that fees may constitute a barrier for services providers, it seems most appropriate to recommend that further studies be conducted on this issue.**

#### 4.3.4 Sanctions

Sanctions should be proportional to the infringements involved in accordance with principles established by the ONP directives. In some countries, SNOs are given the opportunity to realign themselves within a fixed period of time, before sanctions such as withdrawal of permission, fines or penalties are brought into effect.

Withdrawal of an authorisation to operate a network seems to be a strong sanction in cases where SNOs are only guilty of minor infringements of regulation. A certain amount of consideration for users seems appropriate. If permission to operate a network is withdrawn, this has an impact on all users of that network.

Taking this into account, it is the opinion of ETO that gradual sanctions should be defined in national regulations for all possible operator infringements which the operator may be guilty of. In all cases, the operator should be given the opportunity to realign himself with the regulation before sanctions are imposed.

**ETO therefore proposes that, in accordance with ONP principles of the EU policy, sanctions should be clearly defined and should be proportional to the infringement.**

#### 4.3.5 Appeal procedures

All operators should have the opportunity to appeal against decisions of the NRAs, as is the case in all countries. However, the procedures for appealing and the bodies to which such appeals may be brought are considered a national issue, since they are dependent on the legal traditions and structure of the public administrations of each country.

Several countries may, however, be involved in an appeal procedure, since SNS are often cross-border services. Therefore, co-ordination of appeal procedures is necessary and this issue should be studied in the context of the entire telecommunications sector.

One principle should, however, always be observed to ensure the service provider a fair proceeding; that is, the individuals treating the appeal cannot be the same as those individuals who have made the decision on which the appeal is founded.

**ETO proposes to establish a database with access via the INTERNET to the contact points involved in appeal procedures on the licensing of satellite networks.**

## CHAPTER 5

### CONCLUSIONS

The aim of this chapter is to present the ETO's proposals, based on the proposals presented in chapter 4 and modified in order to take into account the comments received from the industry (annex 15). These proposals of the study have been drafted in a concise manner.

#### 5.1. ETO's proposals for an harmonised licensing regime for satellite networks and services

**ETO's proposals are based on the following observations and decisions:**

- Harmonised licensing conditions and procedures for satellite networks and services will facilitate the creation of an internal market for them.
- The European Union's Directives have defined a general framework for a common European approach to the licensing of telecommunications networks and services.
- Telecommunications services should have a single licensing regime independent of the network used for their transmission to users.
- Regarding licensing conditions, telecommunications satellite network is a single category which includes three sub-categories: Mobile Satellite Services, Satellite News Gathering and Satellite Networks operating in exclusive frequency bands.
- Licensing conditions are divided into three groups: Qualification conditions -common to most of the telecommunications services and networks, Operating conditions on satellite networks -based on general telecommunications regulations, and conditions of earth stations -based on radio frequency regulations which include co-ordination and site clearance.
- Interconnection rights and obligations change from a category of operator to another. This condition is mentioned in the harmonised list of licensing conditions of satellite networks open to the public. Additional obligations may be added in accordance with ONP directives; in particular, specific conditions apply to operators having a significant market power and having been notified by NRAs to the EC..
- Universal service obligations and financial contribution to the provision of universal services are not included in the harmonised list of licensing conditions of satellite networks.

- Simplified licensing conditions should be established for Satellite News Gathering and Satellite Networks operating in exclusive frequency bands.
- Frequency issues have already been studied by ERO for the EC, providing information of the availability of frequencies in European countries and proposing new frequencies for satellite services.
- The ERC decisions on the licensing and free circulation within Europe of land mobile earth stations.
- The harmonisation of issues related to licensing regimes has not been deemed necessary for Space Segment Operators licensing, the establishment of a selection procedure, and the harmonisation of fees.
- The co-ordination of the granting of national authorisation has not been included in the study and is considered separately by ECTRA and ERC, which have decided to co-operate for the establishment of a common One-Stop-Shopping procedure. The procedure will include all aspects of licensing e.g. services, networks and frequencies.

**Based on the above-mentioned criteria, ETO makes the following proposals:**

- Satellite networks are defined as a configuration of one or more satellites which provide(s) controlled radio transmission facilities and which interconnect(s) with earth stations. These networks consist, at the very least, in the establishment of transmission lines:
  - i) between space segment and fixed earth stations which provide the link to the terrestrial public network(feeder links),
  - ii) between space segment and end user earth stations which may be fixed or mobile (service links).

One or more earth stations may have the function of controlling the system and/or of interconnecting with other networks.
- Individual licence may be required for authorising the provision of satellite networks (public and non-public).
- Only one entity per country will be required a licence for operating a single satellite network and NRAs should co-ordinate their positions on the identification of the relevant entity.
- Registration of additional earth stations of authorised satellite networks should be favoured when co-ordination and site clearance are not necessary or have been properly completed.
- Individual licence for additional earth stations may be required when registration is not possible.
- General authorisation without registration is the relevant procedure for the licensing of receive-only earth stations.
- General authorisation of land mobile earth stations is recommended in order to facilitate their free circulation.

- The harmonised list of common qualification conditions for satellite networks is:
  - \* SNO identification: name, address, trading name, telephone number, name of contact person and business registration details;
  - \* Description of the service (except SNG);
  - \* Description of the system (except SNG);
  - \* Technical capabilities (public SN only);
  - \* Financial viability (public SN only).
  
- The harmonised list of operating conditions for SN, with the exception of SNG, is:
  - \* Respect of essential requirements,
  - \* Agreement with satellite organisation,
  - \* Restriction of provision of services for which exclusive rights exist (public SN only)
  - \* Data protection specific to telecommunications (public SN only)
  - \* War, defence and national security requirements,
  - \* Information for users on demand,
  - \* Access to numbers in the public numbering plan (public SN only)
  - \* Interconnection rights and obligations (public SN only)
  
- The harmonised list of conditions for earth stations, which includes co-ordination and site clearance is divided into the three sections listed below:
  - I) The following conditions are valid for all SNs:
    - \* Station details
    - \* Declaration of frequency bands assigned.
  - ii) The following conditions are valid for SN with the exception of SNG.
    - \* Integrity of the system;
    - \* Documentation for type approval of equipment;
  - iii) The following conditions are valid for SN with the exception of SNG and SN operating in exclusive bands.
    - \* Provision of information required for ITU co-ordination,
    - \* Aerial specification of main station for site clearance,
    - \* Technical details on the antennas.
  
- The harmonised list of conditions of land mobile earth stations is:
 

A-Conditions:

  - Efficient use of frequency bands,
  - Availability of terminal specifications,
  - Emergency calls,
  - Data protection,
  - Provision of information on the description of the system.

B-Information:

- Coverage,
  - Frequency bands,
  - Interconnection,
- The definition of milestones may be agreed upon between the applicant and NRAs for satellite systems which need scarce frequency resources and a long period of time for their implementation:
  - A database with access via INTERNET may be established in order to provide information on:
    - \* contact points involved in the licensing of satellite networks in each NRA;
    - \* contact points concerning appeal procedures in each country.
  - A ten year period is recommended as the minimum duration of individual licences.
  - Further studies are needed on fees regarding their structures and amount.
  - Selection should be avoided except if it appears that there is a lack of frequency resources. In this case, further study is needed in order to establish such a procedure.
  - Co-ordination of the granting of national authorisation should be facilitated by the establishment of a One-Stop-Shopping procedure.

In conclusion, regarding the practicalities of network authorisation and terminal licensing, it should be said that the above proposals are quite similar to the licensing regime already in force in some European countries like Finland, France, Sweden and the United Kingdom.

## **5.2. Areas for further studies and for which harmonisation is not necessary**

Finally, ETO has identified several areas where harmonisation is not necessary or cannot be achieved in the immediate future.

No authorisation is required for Space Segment Operators (SSO) in most European countries and, therefore, harmonisation of this issue has not been deemed necessary. Only one entity – the SNO – is possibly required to obtain an individual licence for operating a satellite network.

When the scarcity of frequency resources imposes a limit on the number of licensees, there arises the need for a selection procedure among applicants. However, the issue of implementing a selection procedure has not been studied in depth. At the moment, selection procedures have only been implemented for terrestrial mobile networks and not deemed necessary for GMPCS. However, this will require further study.

The fees required for the licensing of satellite services are seen by operators as a constraint, and the amount to be paid is perceived as too high compared to the different costs on which they should be based. ETO has compiled information on this and has made calculations for five theoretical VSAT systems. These calculations show that harmonisation is needed with regard to this issue. ETO has proposed to study the issue in 1998 in order to provide information from all CEPT countries and to analyse the trends.

The consequences of auctioning frequency spectrum on fees has not been included in this study. This has to be considered, if a study is requested on that issue, within a study including procedural aspects.

The scope of the study excludes frequency and numbering issues, the harmonisation of which is currently being undertaken by ERC and ETO respectively in separate studies.

Co-ordination procedures have not been included in the study either. CEPT has established such a co-ordination for S-PCS. This includes the establishment of Milestones and a milestones review committee. The establishment of an OSS procedure for the entire satellite sector is also under consideration within CEPT.

Other systems are already planned and they will be more complex, may require more frequency bands, may use more satellites and earth stations, may be combined with fixed and mobile terrestrial networks, and may provide a wide range of services including video and broadcasting. This is a valid ground for the establishment of procedures of co-ordination.