Annexes
of the
FINAL REPORT
On
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.

Table of annexes

Work order no. 48315
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Annex 1
August 1995

ANNEX 1 of the Work Requirement No.48 315

1. Subject: Satellite network and Communication Services other than S-PCS[1].

2. Purpose

To define harmonised conditions for the authorisation of satellite network and communication services other than satellite personal communication services required for the creation of an internal market for such services[2], where appropriate involving mutual recognition of national authorisations[3].

3. Justification

Different national conditions for the authorisation of such telecommunications services are creating a barrier to the creation of an internal market for these services. In order to overcome this barrier, the proposed Directive on the mutual recognition of licences and other national authorisations for Satellite services[4] provides for the harmonisation of conditions for authorisation and a procedure to determine categories of services for which such prior harmonisation is not necessary.

In particular, the European Commission published on 23 November 1994 a Communication to the European Parliament and to the Council on the consultation on the Green Paper on Mobile and Personal Communications.

Discussions between the EU Commission and the Council European Parliament regarding this proposed directive are still in process on such issues as mutual recognition, one-stop-shopping and harmonisation of conditions relating to satellite services in Europe. Whatever the outcome of this process will be, conditions need to be harmonised in view of the authorisation of satellite network and communications services.

The Memorandum Of Understanding between France, Germany, Netherland and United Kingdom on VSAT[5] and SNG[6]licensing scheme is the first step toward mutual recognition of national satellite licences and provides elements which have to be taken into account concerning these services. Also the work requirements between ERO[7] and the Commission will provide information on frequency matters and further cooperation on MSS[8], VSAT and SNG between ERO and ETO is needed.

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[1]Satellite personal communication service.

[2]Commission directive 94/46/CEE of 13 October 1994 amending Directive 88/301/CEE and Directive 90/388/CEE in particular with regard to satellite communications.

[3]EU directive on a common framework for general authorisations and individual licences in the field of telecommunications services.

[4]This proposal has been included in the above-mentioned licensing directive.

[5]Very Small Aperture Terminal

[6]Satellite News Gathering

[7]European Radiocommunications Office.

[8]Mobile satellite service.

A set of harmonised conditions have to be agreed and made available by the time of the expiration of the implementation period for this directive, as finally agreed by the European Parliament and Council.

4. Work requirement

(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 with regard to authorisations.

(2) to coordinate the results with ERC[9]/ERO which has 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 such harmonisation is not necessary for the creation of the internal market.

5. Execution

The final report on this task will be made available to the Commission, at the latest on 1st September 1996[10].

6. Deliverables

Three interim reports and one final report shall be delivered.

The first interim report shall be delivered during the course of the work, containing the identification of the relevant service and a workplan for the remainder of the work (1st July 1995).

The second interim report shall contain the draft findings and proposals on VSAT and SNG as they will be submitted to CEPT/ECTRA for approval (1st February 1996).

The third interim report shall contain the draft findings and proposals on other satellite services as they will be submitted to CEPT/ECTRA for approval (1st May 1996)[11].

The final report shall contain the findings and proposals, as approved by CEPT/ECTRA and will include any comments individual CEPT/ECTRA members may have on the implementation in their respective national regimes (1st September 1996).

All reports shall be made available in draft form one month before a liaison meeting discusses the results and approval can be given for their release.

The Commission shall receive three copies of the interim reports, while the approved final report shall be made available in 15 bound copies, one unbound copy and one copy on

[9] European Radiocommunications Committee.

[10] The delivery date has been postponed to December 1997.

[11] It was sent to the EC in February 1997.

floppy disk in Word for Windows V2.0 format. *G*raphics shall be made available on separate hard copie*s*.

7. Manpower

It is expected that this task can be accomplished in 10 man/months of effort at expert level including subcontracting.

8. Subcontracting

Subcontracts may be given to external experts for the execution of parts of this contract, representing no more than 5 man/months[12].

[12] Subcontract was given to Sirius

Annex 2
Dec 97

European Union policy on the satellite telecommunications sector

1 The Union's policy on satellites

The Union's policy regarding satellites is composed of three texts dealing specifically with satellites and three other texts dealing with space segment, mobile communications and licensing. These texts are presented below.

On 8 November 1994 the satellite sector in the European Union and European Economic Area countries was fully liberalised, except for countries in which terrestrial networks had not yet developed sufficiently - for these countries application of the Directive has been postponed until 1 January 1996. NRAs had to enforce licensing regimes for satellites and inform the European Commission of their actions by 8 August 1995.

- **The Commission Directive 94/46/EC of 13 October 1994 amending Directive 88/301/EEC and Directive 90/388/EEC in particular with regard to satellite communications.**

  The first purpose of this Commission Directive is to amend the two directives on the liberalisation of the markets for terminal equipment and some telecommunications services such as Bearer Data Services, Value Added Services and services not provided to the public. The amendments take into account the judgement of the European Court on the definition of "special rights"[13].

  The second purpose of the Directive is to extend these 2 directives to the satellite sector. This means that the satellite market has been liberalised for terminal equipment, earth stations, a first group of services generally called Value Added Services.

  The Directive provides definitions on:

  - "satellite earth station network" means a configuration of two or more earth stations which interwork by means of a satellite,
  - "satellite network services" means the establishment and operation of satellite earth station networks; these services consist, as a minimum, in the establishment, by satellite earth stations, of radiocommunications to space segment (uplinks), and in the establishment of radiocommunications between space segment and satellite earth stations (downlinks),
  - "satellite communications services" means service whose provision makes use, wholly or partly, of satellite network services and
  - "satellite services" means the provision of satellite communications services and/or the provision of satellite network services.

  In addition satellite services are included in the telecommunications services as redefined in this Directive. The Directive also states that licensing or declaration

[13] Case C-202/88, France v. Commission on Directive 88/301/EEC and Case C-271/90, C-281/90 and C-289/90, Spain v. Commission.

obligations will only be justified in order to ensure compliance with the essential requirements, subject to the proportionality principle. The Directive adds a fifth essential requirement which is :
"*the effective use of frequency spectrum and the avoidance of harmful interference between satellite telecommunications systems and other space-based or terrestrial technical systems."*

The last Whereas of the Directive indicates that for satellite services, Member States, in which the terrestrial network is not yet sufficiently developed, can to the extent necessary, defer the date of full application of the provisions of this Directive until 1 January 1996.

After 1st January 1996, all these services will be allowed subject to the granting of a licence or other type of authorisation in all the Union and EEA countries.

- **The Council resolution of 22 December 1994 on the future development of the Community's satellite communications policy, especially with regard to the provision of, and access to, space segment capacity.**

  The Council identifies as basic goals for the future development of a satellite communications policy:

  1- non-discriminatory access for all providers and users of satellite services throughout the Community, to space segment capacity, including in particular space segment capacity provided by intergovernmental organisations;

  2- (intergovernmental satellite organisations)

  3- balance and effective access to third country markets, in parallel with the liberalisation of the Community market.

  4- effective management of orbit and frequency resources within the framework of ITU, building on the co-operation in CEPT.

- **The Council resolution of 13 June 1995 and European Parliament resolution of 19 May 1995 on New developments in Personal Mobile Communications within the European Union.**

  The Council and the European Parliament consider as priority objectives in the development of the mobile and personal communications sector to ensure within the Union:
  - the granting of licences according to objective, transparent, proportional and non-discriminatory criteria;
  - that the number of licences granted may only be limited on the grounds of essential requirements, such as the efficient use of frequency spectrum;
  - that Member States should authorise, as soon as possible, operators to directly interconnect mobile with fixed communications networks or mobile networks with each other;
  - prior to 1st June 1996, the specification of a harmonised licensing approach for Satellite-based mobile and Personal Communications, after investigation by ECTRA.

- **The Council resolution of 7 December 1993 on the introduction of Satellite Personal Communication Services in the Community (93/C 339/01).**

  This resolution, based on the Green Paper of 29 November 1990, on a common approach in the field of satellite communications in the European Community, and the Council resolution of 19 December 1991 gives support to the general goals set out in the Commission's Green Paper.

  The Council recognises the need to clarify the particular characteristics of S-PCS which affect the European and international regulatory regimes. It also recognises the challenge for the Community to develop a forward-looking regulatory framework which allows the introduction of S-PCS.

  The Council has stressed the importance of developing a Community policy with regard to S-PCS and therefore invites the Member States to make efforts towards developing as soon as possible such a Community policy, and a co-ordinated position, in particular within the context of international organisations. It invites the Commission to reinforce its co-operation with ETSI, ERC and ECTRA by examining the related standardisation, radio-frequency and licensing issues respectively.

  The Commission has already agreed on work orders with ETSI and ERC on the above-mentioned topic and with ETO which is acting on behalf of ECTRA. NRAs also ask that the ECTRA PT on Licensing present the national licensing regimes of CEPT countries to ETO so that the situation can be fully understood before starting harmonisation on a European level, as requested by the Council.

- **Directive 97/13 of the European Parliament and of the Council on a common framework for general authorisation and individual licences in the field of telecommunications services (adopted on 10.04.97).**

  The directive lays down a common framework for national authorisation regimes. The most important features are:

  - prohibition of a priori limitation of the number of authorisations for any category of telecommunications service and infrastructure, except to the extent required for ensuring the efficient allocation of radio frequencies;

  - a distinction between general authorisations and individual licences, with priority given to general authorisations to give effect to public interest requirements, rather than to individual licences;

  - Member States will have the possibility of not making market entry conditional to an authorisation;

  - both the definition of harmonised principles and the provision of harmonisation mechanisms for i) the procedures for granting authorisations, ii) the conditions attached to authorisations and iii) the introduction of provisions designed to facilitate cross-border services.

- **Decision 710/97 of the European Parliament and of the Council on an action at a Union level in the field of satellite personal communications services in the European Union (adopted on 24.03.97).**

The decision aims at facilitating the implementation of the internal market principles for compatible satellite personal communications services simultaneously in the community by means of a co-ordinated approach.

A co-ordinated authorisation approach should be established in conjunction with CEPT-ECTRA and ERC, and the Commission will be assisted by the Licensing Committee or by an interim ad hoc Committee which met first in May 1997. The EC addressed 4 mandates to ERC and ECTRA in order to adopt and implement the relevant decisions on frequency and licensing issues. Three of them have already been adopted in July 1997. The fourth one on the establishment of a One-Stop-Shopping procedure is currently under study and a decision is expected in December 1997.

The international aspect aims at ensuring effective and comparable access for community organisations to the markets of third countries. Where obstacles are identified, the Commission may require negotiations and shall therefore submit proposals of recommendations to the Council for an appropriate authorisation for negotiation.

Annex3
Dec 97

NATIONAL SATELLITE LICENSING REGIMES IN CEPT COUNTRIES

The objective of this annex is to present the findings of the investigation made by Sirius on national licensing regimes for VSAT and SNG services in CEPT countries. Additional information and corrections have been added by ETO in order to take into account regulations recently adopted in some countries and to present the licensing regime of all satellite networks. This investigation was based on a questionnaire sent to national regulators, followed with telephone conversations. Not all administrations contacted answered the questionnaire, and those who did, did it with varying degrees of precision. A detailed analysis of national regulations in countries where we could obtain adequate information is given below.

A) - AUSTRIA'S VSAT/SNG LICENSING REGIME

The recently adopted Austrian Telecommunications Law of 1997 replaced the previous law of 1993 . In the 1997 law, the following aspects are specified:

Satellite networks are considered as radio systems and an individual licence is required for operating terminal equipments (article 9).

The provision of services requires either a registration/notification or an individual licence, depending of the services offered. Individual licences are required for mobile communication and voice telephony.

With regard to interconnection, it is pointed out that any type of interconnection is allowed. The interconnection should be made through an interface which must be type tested, type approved and marked in accordance with directive 93/97 EEC.

Technical Conditions:

The transmission frequency of the earth station should be situated within the band of 14.00 up to 14.50 Ghz.

The receiving frequency of the earth station should be situated within the 11/12/14 Ghz bands. The standards are based on ETS 300159 and 300160for VSAT and on 300327 for SNG.

In addition, VSAT are allowed to operate within the 4/6 band. But an additionnal licensing condition is frequency clearance in each particular case due to the fact that this frequency band is heavily used by the fixed service (microwave links).

Site Clearance:

Site clearance is required by Telecommunications Authorities in the following cases:

- if SNGs operate in the vicinity of an airport;
- if VSATs operate in the 4/6 Ghz frequency band.

Other Austrian authorities may require site clearance, depending on local or regional regulations, e.g.

- construction licence for VSAT antenna (related to safety of persons and goods, protection of areas with specific historical significance...);
- licence from the police for SNG equipment to be located on public traffic areas.

Fees will be defined by the newly established Authority. The previous fees are nevertheless given here for information:

The licence fee for VSAT depends on the number of transmitting units (inclusive of redundant units) and on the maximum RF-output power of the transmitting unit.

The monthly fees are the following:
<1 watt ATS200 per transmitting unit
<6 watt ATS 500 per transmitting unit
<30 watt ATS700 per transmitting unit
<150 watt ATS1,500 per transmitting unit
<1000 watt ATS4,500 per transmitting unit
>1000 watt ATS9,000 per transmitting unit

If international co-ordination is needed, a fee of ATS 15,000 is charged.

B) - BELGIUM'S VSAT/SNG LICENSING REGIME

In Belgium, the exploitation of the public telecommunications infrastructure, understood as ¥ all the equipment and related means that enter the public domain and are intended for telecommunications, are part of the exclusive concession of Belgacom. In conformity with European regulations, it is however possible to make an exception to the monopoly of Belgacom as far as satellite concessions are concerned. A new order (arrêté royal) is currently under discussion and will provide a new regulatory regime for satellite networks.

All services are allowed on VSAT networks, apart from public switched voice telephony which is still part of Belgacomís exclusive concession. All data communications services, voice -store and forward, or to closed user groups are totally free.

The licensing regime is a combination of service licensing and terminal licensing. The licensing conditions are as follows:

- the equipment must be type approved in Belgium or in another European country
- Eutelsat or Intelsat satellites must be used, or satellites whose emission/reception operations are coordinated with Eutelsat and Intelsat

- Belgacomís monopoly must be respected by the services offered.

The fees charged at the moment for a licence consist partly of a single administrative cost of Bfr 4,130 and of a renewable control and supervision fee. The latter is as follows:

- Bfr 14,982 per month for SNG
- Bfr 14,880 per year for bidirectional VSAT with a capacity under or equal to 64 kbits/second
- Bfr 27,760 per year for bidirectional VSAT with a capacity above 64 kbits/second
- Bfr 1,860 per year for VSAT recieve-only stations.

These amounts may be modified by the new order referred above.

C) - DENMARK'S SATELLITE LICENSING REGIME

The existing telecommunications regulation in Denmark was amended by Laws adopted by the Danish Parliament on 31 May 1996. All telecommunications services, which include voice telephony, infrastructures and satellite services, were liberalised by 1 July 1996 and all individual licences replaced by a class licence - the Executive Order No 712 of 25 July 1996 on the provision of telecommunications networks and services with the exception of Premium Rate Services for which a registration is required.

Under the new executive order No 712, anyone is allowed to offer satellite services and must apply the conditions stated in this Executive order or class licence. Interconnection to other networks is subject to the telecommunications regulation on competition and interconnection.

Regarding radio licensing, the satellite earth stations that form part of a VSAT or SNG network may be installed and operated only subject to a licence being granted for this purpose by the National Telecom Agency.

The fee structure is as follows:

No fee is required for the provision of services in Denmark.

Fees are collected annually with respect to the issue and amendment of licences for satellite earth stations. This annual fee has been fixed at DKK 1,200. In addition, a once-off fee of DKK 900 is charged in connection with the granting of a licence.

To obtain a licence for satellite earth stations, VSAT and SNG equipment must be type approved and for this type approval a single fee of 4,800 DKK is required.

D) - FINLAND'S SATELLITE LICENSING REGIME

According to the recently adopted Finnish Telecommunications Act 396/1997 and the Decision 475/1997, VSATs and SNGs are exempt from the scope of this regulation. However, radio equipment is subject to a separate regulation.

Because of the deregulated nature of the Finnish market where characteristics and location of receive-only terminals cannot be known or regulated by the authorities, the reception cannot be protected against possible harmful interferences from other radio-transmitters. Protection can, however, be granted by the Telecommunications Administration Centre for a period of 10 to 15 years. But in that case, special individual conditions may be stipulated concerning technical characteristics and location of the receive-only terminals.

There is a one-time fee collected for the handling of the application for protection, calculated according to the time needed for the work: FIM 500 per hour, one hour being the minimum and ten hours (FIM 5000) the maximum.

For the use of a transmitting terminal, a licence is required with a fee of FIM 360 for a station which needs not be coordinated internationally and FIM 880 when international co-ordination is required[14].

E) - FRANCE'S SATELLITE LICENSING REGIME

Since the 23 September 1995 advise issued by the Direction des Postes et Télécommunications, transposing Directive 94/46/CE into French regulation, it is now possible in France to receive authorisations to provide liberalised services on private networks open to the public.

Licence Application

The licence can be obtained from the Ministry in charge of telecommunications by a legal entity or by an individual. There are restrictions regarding the nationality of the applicant for a licence only for networks open to the public: the interest held by a non-European Union company can not exceed 20%.

Preparation of the licences to public services and networks is made by the ART (Autorité de Réglementation des Télécommunications).

Legal Use

Until the end of 1997, it is allowed to use satellite networks for the following services:

- for any type of service for its own use (eg. CUG), including speech transmission;
- for value added services;
- for broadcasting services;
- for data services including leased lines.

[14] It should be checked whether these fees have been maintained in the new regulation.

By 1st Janaury 1998 the provision of all services will be allowed.

Regarding interconnection, it is pointed out that any type of interconnection is allowed. Interconnection to PSTN should be made by a standardized interface authorized by DGPT.
Regarding the licensing regime of SN, two type of networks should be considered, networks open to the public and private networks.

Technical Conditions

Assignment of frequency bands is made by the ART.

For VSAT and SNG, the transmission frequency should be situated within the band of 14.00 up to 14.25 GHz.The receiving frequency should be situated within the band of 12.50 up to 12.75 GHz. Eventually, it could be situated within the band of 10.70 to 11.70 GHz, without any protection against perturbations.

Validity of Licences and Fees

There are two network categories: the first category consists of networks with less than 5 stations and the second category consists of networks with more than 5 stations. The number of stations includes the hub station. For the first category, an initial fee of FF25,000 is charged. For the second category, the initial fee amounts to FF40,000.

For SNG there is no yearly fee.
Yearly fee for VSAT networks are the following:

- for one-way networks which belong to the first category, a fee of FF3,000 is charged;
- for one-way networks which belong to the second category, a fee of FF30,000 is charged;
- for two-way networks which belong to the first category, a fee of FF3,000 and FF500 per station is charged;
- for two-way networks which belong to the second category, a fee of FF10,000 and FF500 per station is charged.

VSAT licences are granted for a 10 year period and SNG licences for a 5 year period.

Attention: The French fee structure is braced for change. A reasonable fee for frequency co-ordination of the earth stations should be introduced.

	Initial Fee :	Yearly Fee :	
		One way	Two way
Category 1 (<5 stations)	FF25,000	FF3,000	FF3,000 + FF500 per station
Category 2 (>5 stations)	FF40,000	FF10,000	FF10,000 + FF500 per station

F) – GERMANY'S SATELLITE LICENSING REGIME

The telecommunications Act (TKG), published in 1996, established a new legal framework applicable to telecommunications services, networks and terminal equipment.

Anybody who operates transmission lines going beyond the limits of a property and used to provide telecommunications services for the public is required to have a licence. Terminal equipment -hence in the VSAT and SNG areas as well - are subject to the general type approval requirements of article 59 of the telecommunications Act. For this reason no specific regulation exists for VSAT and SNG.

According to article 6 (2) No 1b) of the TKG, a satellite licence (Licence class 2) is a licence for the operation of transmission lines for satellite services, provided by means of earth stations, for the public by the licensee or other parties. The licence operator is therefore entitled to operate all transmission lines (cable and radio links) that are required for the provision of the satellite services in question.

The licence shall not include the right to offer voice telephony (for which a separate licence class 4 is required), mobile communications (licence class 1) and broadcasting.

The licensee shall be obliged to make an offer for interconnection to other operators of a public telecommunications network upon request.

If transmission lines are made available to other network operators on a commercial basis (leased lines), an additional licence "licence class 3" is required for this purpose.

If services other than satellite services for the public are provided via these other transmission lines (mobile radio, voice telephony), a licence of the applicable licence class is also required (licence 1: mobile radio licence - licence 4: licence for voice telephony).

If earth station equipment is also terminal equipment, it must be type approved according to article 59 of the TKG.

Frequencies shall not be assigned in a licence, but by special administrative act (article 47 of the TKG). The necessary transmission capacity will be made available by the operator of the space segment on the basis of international agreements.

Information available on fee structure is only that which was in force in the previous regulation. However, it seems that amounts of fees have not been significantly modified and the figures used for the calculation of fees in chapter 3 are as follows:

Serial number	Official act	Fees in DM
A	General fees payable for the grant of licence classes 1 to 4	
1	Grant of a licence to the licensee or other parties for the operation of transmission lines for mobile radio services for the public (Licence Class 1)	DM 15,000 to 5 million
2	Grant of a licence to the licensee or other parties for the operation of transmission lines for satellite services for the public (Licence Class 2)	DM 15,000 to 30,000
3	Grant of a licence to the licensee or other parties for the operation of transmission lines for telecommunications services for the public (Licence Class 3)	DM 2,000 to 10,6 million
4	Grant of a licence for voice telephony on the basis of self-operated telecommunications networks in a given geographical area (Licence Class 4)	DM 2,000 to 3 million
B	Fixed charges for individual lines covered by licence classes 3 and 4	none
1	Grant of a licence for the operation of transmission lines as point to point connections for telecommunications services for the public a) per Licence Class 3 local line b) per licence class 3 trunk lines	 DM 200, but not less than 2,000 DM 600 / km straight-line distance
2	Grant of a licence for voice telephony via a point to point connection a) per licence class 4 local line b) per licence class 4 trunk line	 DM 100 but not less than 2,000 DM 10,000

G) – GREECE's SATELLITE LICENSING REGIME

In Greece, no regulation exists at present on the licensing of satellite networks. New regulation has been drafted in accordance with the EC directive 94/46/EC of 13 October 1994, but it has not been adopted yet.

The authority in charge of the licensing is the Ministry, and the demands will be examined by the National Telecommunication Commission (EET).

H) ITALY'S SATELLITE LICENSING REGIME

The decree of 11 February 1997 implements within Italian legislation the EC directive 94/46/CE on satellite communications. Voice telephony, telex and broadcasting are excluded from the scope of this decree.

An individual licence is require for the provision of satellite network services and communication services via satellites. A specific regime has been established for SNG. Receive-only VSAT earth stations do not need individual licences.

The decree on 28 March 1997 defines the fees to be paid for the granting of licences and the use of frequencies. Initial and annual fees are required. Initial fees cover administrative costs of networks and services licensing separately (500 ECUs for each, plus 2,000 ECUs for co-ordination ITU procedures). Separated annual fees have been adopted for the installation of earth stations for fixed satellite networks, for Mobile satellite services and for a third category composed of voice telephony services and S-PCS. Tariffs for fixed services differ depending of the existence of connection with PSTN. Earth station connection fees vary from 2,000 ECUs for less than 10 units to 10,000 for more than 100 units. For MSS the fee is 2 000 ECUs and for the third category the fee is 10,000 ECUs. Normally for networks not connected to the PSTN fees are 3/4 of the above figures.

I) IRELAND'S SATELLITE LICENSING REGIME

In Ireland the provision of all telecommunications services other than voice telephony as defined in Irish and EU law, is liberalised. Satellite telephony is not considered to be voice telephony. A service licence is required irrespective of the infrastructure used. Such licences are available without quantitive restrictions at a cost of IR£1,000 and remain valid to mid-1999.

Infrastructure is liberalised and a separate licence is required to provide and operate infrastructure, once again independent of the means used. As with the services licence, the infrastructure licences are available without quantitave restrictions at a cost of IR£1,000 and remain valid to mid-1999.

A review of telecommunications licensing will be undertaken prior to full liberalisation on 1 January 2000.

In addition a wireless telegraphy licence is required to operate equipment where the use of the radio frequency spectrum is involved. The legislation setting out the terms and conditions of such licences, including the fees payable, is currently in preparation and it is expected to be in place shortly. In the meantime, temporary permissions are granted to operate such equipment. There is no charge for such permissions.

J) – LATVIA'S VSAT/SNG LICENSING REGIME

In Latvia, VSAT and SNG licences are granted to all operators who will use the communication links for themselves. Each and every transmitter must then have a radio licence issued by the Latvia Telecommunications State Inspection. Once these conditions are met, the application is checked for electromagnetic compatibility and frequency co-ordination requirements before a radio licence can be granted.

The licence takes the shape of a one-year contract, prolonged automatically if both sides carry on their obligations. For a one time brief operation, technical details may be provided in a simpler form. Fees charged are as follows:

1) annual fee per up-link, in ECU
(if emitting power exceeds 60 dBW, fee is doubled)

carrier freq. (Ghz)	Bandwidth (MHz)			
	up to 0.2	from 0.2 to 2.0	from 2.0 to 20.0	over 20.0
<1	717	3587	14347	35868
1-10	430	2152	5739	14347
10-15	359	1435	3587	10760
>15	287	717	1435	4304

for marginal values of frequency and bandwidth, the lower price applies.

2) annual fee per down-link, in ECU

carrier freq. (Ghz)	Bandwidth (MHz)			
	up to 0.2	from 0.2 to 2.0	from 2.0 to 20.0	over 20.0
<2.5	717	3587	14347	35868
2.5-2.69	430	2152	5739	14347
3.4-7.75	359	1435	3587	10760
10.7-12.75	287	717	1435	4304
17.7-21.2	215	502	1148	2869
>37.5	143	359	574	1435

for marginal values of frequency and bandwidth, the lower price applies.

In order to provide telecommunications services to third parties on a commercial basis, a carrier's licence must be obtained from the Latvian Ministry of Transport and Communications.

K) - LUXEMBOURG'S SATELLITE LICENSING REGIME

A licensing and declaration system is in place according to the Telecommunication Law of 21 March 1997 which entered into force on 1 April 1997. The following types of operation, (satellite or otherwise) require a licence:

a) the exploitation of public telephony services;
b) the exploitation of mobile telephony networks, including communications by satellite;
c) the exploitation of radio-messaging services.

Satellite services for which a licence is not required are subject to a declaration procedure.

The conditions and the fees will be defined in specific orders not adopted yet.

L) - MALTA'S VSAT/SNG LICENSING REGIME

Licence Application:

The licence can be obtained by a legal entity or by an individual. There are no restrictions regarding the nationality of the applicant for a licence. VSAT licensees are Norasia, Computer Outsourcing Services, Holiday Inn, Samara International, Baxter Ltd, Public Broadcasting Services, SITA, Bank of Valetta, Mid-Med Bank, SGS Thomson, Lloyds Shoes and Telemalta.

Legal Use:

It is allowed to use VSAT service for the following services: voice, data and fax. Each terminal is licensed to individual users for their personal use. Direct connection of the terminal with the public switched network of Telemalta is forbidden.

Technical Conditions:

Site clearance is requested from the local Planning Authority in all cases, except for one event case. Technical Informations asked are those of the ESOG/SSOG form.

Validity of Licences and Fees:

For SNG there is a Lm200 yearly fee.
Yearly fee per terminal for reception/transmission are the following:

<64 kbits/s: Lm500
<128 kbits/s: Lm1,000
<256 kbits/s: Lm2,000
<512 kbits/s: Lm3,000
<1024 kbits/s: Lm6,000
>1024 kbits/s, per 1024kbits/s: Lm6,000
VSAT hub station: Lm8,000

For one event of 30 days a Lm300 fee is charged.

VSAT and SNG licences are granted for a 1 year period and renewable.

M) - THE NETHERLANDS' SATELLITE LICENSING REGIME

In the Netherland it is possible for anybody to install, possess and operate/use satellite earth stations. The licence required for it can be obtained by the user of the satellite earth station or by the network operator. The licence required for the hub should be obtained by the network operator.

Categories of Licences

The provision of services by VSAT and SNG have a free regime. However, in 1998, a registration may be required for the provision of public services in accordance with the future telecommunications act, not yet adopted.

In addition a radio licence is required either for individual earth stations or for a network.

With regard to allowed interconnection, it is pointed out that any type of interconnection is allowed to PSTN, ISDN, PSPDN, public telex networks and private networks. The interconnection should be made by a standardized interface to those networks.

Technical Conditions

For VSAT, maximum capacity is 2 Mbit/s and the maximum diameter is 4 meters for the dish antenna.
For SNG, the maximum diameter for the dish antenna is 4 meters.
The transmission frequency of the earth station should be situated within the band of 14.00 up to 14.50 GHz.

The receiving frequency of the earth station should be situated within one of the following bands:

- 10.95 - 11.20 GHz
- 11.45 - 11.70 GHz
- 12.50 - 12.75 GHz

Validity of Licences and Fees

Each licence is granted for a 5-year period.
The licences are based on the assigned frequency bandwith:

<0.2 MHz	NLG100 for each installation
<2 MHz	NLG1,000 for each installation
<18 MHz	NLG5,000 for each installation
>18 MHz	NLG10,000 for each installation

For SNG the yearly fee is NLG1,000 for each installation.
For the issue of a satellite licence an initial fee of NLG1,400 is charged.

If frequency co-ordination is necessary, ie for high power earth stations, or those not operating in the VSAT/SNG frequency band, a fee of NLG2,000 is charged (ITU co-ordination).

Space Segment

It is possible to use any space segment in the Netherlands. For Eutelsat and Intelsat space segment, the cooperation of the signatory PTT Telecom might be necessary.

N) - NORWAY'S SATELLITE LICENSING REGIME.

The Norwegian Telecommunications Act of 8 June 1996 entered into force on 1 January 1996. The act covers all telecommunications activities, including radio activities.

The regulation of the radio aspects does generally not differentiate between VSAT-SNG and other satellite systems, but deals with all types of satellite earth stations.

An individual licence is required for radio aspects, and free regime generally applies to services, except for voice telephony to third parties where an individual licence is also required.

When needed the service licence is granted by the Ministry of Transport and Communications and radio licences are granted by the Norwegian Telecommunications Authority.

Earth stations shall satisfy the requirements laid down in one of the following set of regulations relating to type approval of terminal equipment according either to national or to harmonised standards laid down respectively in order No 1134 and 867. Requirements are dealing with the installation, the use and the maintenance of earth stations.

O) - PORTUGAL'S VSAT/SNG LICENSING REGIME

Until the beginning of 1996, the public operator CPRM had the exclusive control of satellite networks. However, the decree-law 120/96 of 7 August 1996 adopted by the Portuguese government provides a new regulatory regime for the provision of both categories: satellite networks and satellite services.

Following the new regulation, no exclusive or special rights will be maintained. Two licensing schemes may be established for the operation of VSAT and SNG services depending on the location of hubstations. If there is no hubstation located in Portugal, the procedure will be very easy, close to a registration.

The new regulation may impose general administration conditions (legal statute and business registration) which may include technical capability and non-EU ownership restrictions. Voice telephony will be excluded from the services allowed until its liberalisation, scheduled on 1st January 2000.

Every earth station is subject to an individual radio licence with the exception of receive-only stations not connected to the public network and not intented to be protected against radioelectric interferences. In exclusive frequency band 14-14,5 MHz, a more general licence is still under consideration.

Two kinds of fees are applicable: one related to the provision of services and the other for the use of radioelectric spectrum. In the first case, a fixed administrative fee should be paid for the issue of the licence and an annual fee. The initial fee is 2,500 Ecus for networks and 375 Ecus for services, the annual fee is 10,000 Ecus for networks. Also for the use of radioelectric spectrum, two kinds of fees are foreseen: one fixed administrative fee for the licensing of stations involved - from 170 (VSAT operating in preferential bands and receive only stations benefiting from interference protection) to 500 Ecus (earth stations operating outside the prefential band)- and a variable fee directly related to the use of the spectrum - 12,500 Ecus for bandwidth between 100 KHz and 1 MHz. No fees are required for receive only earth stations with no interference protection.

P) - SPAIN'S SATELLITE LICENSING REGIME

The Spanish legislation on satellite telecommunications does not distinguish VSAT and SNG from other satellite services. According to the Spanish licensing regime, both services and systems require an individual licence to provide telecommunications services. In the specific case of self-service providers using an authorised bearer service, only notification to the Spanish NRA is required.

At the moment, authorisations are not possible for basic telephony (until its progressive liberalisation during 1998) and television and sound terrestrial broadcasting.

Temporary licences may be granted, in particular for SNG.

Q) – SWEDEN'S SATELLITE LICENSING REGIME

The Swedish Telecommunication Act does not impose any exclusive or special rights. Moreover, the act does not impose obligations for any licensee to possess or utilize telecommunications infrastructure as such. As satellite facilities are considered as one form of infrastructure, comparable to cable or radio link, there is no requirement for a telecommunications licensee to possess or be in command of satellite capacity as such.

Anyone who, within a publicly available networks, intends to provide telecommunications services to an extent that is not substantial is subject to a notification.

If the services are considered substantial, an individual licence is required.

Provision of network facilities has a free regime. However, the assignment of frequencies requires a radio licence.

R) SWITZERLAND'S SATELLITE LICENSING REGIME

According to the actual legal situation, voice telephony is still under monopoly regime. However, mobile and satellite data transmission is liberalised and licences are issued by OFCOM (the swiss NRA). After the entering into force of the new telecommunications act on 1/1/1998, the whole telecommunications sector will be liberalised and licences will be granted by the OFCOM or the Communications Commission.

The use of radio equipment for the purpose of satellite data communications (e.g. VSAT and SNG) requires a licence. The following fees will be charged for these licences:

A) processing fees

- For analogic radio communications systems with a high frequency bandwith of up to 25 KHz or for digital systems with a transmission rate of up to 10 Mbit/s (standard transmission rate):
  CHF 150 for systems working on common frequencies
  CHF 50 for systems working on collective frequencies
- For systems with a higher transmission capacity:
  CHF 200 for receive-only systems
  CHF 800 for two way systems

B) Administrative fees (regularly):
SNG: CHF 34 for a bandwith
VSAT: CHF 13.60 for a bandwith of 25 KHz

C) Licence fees (regularly):
SNG: 17 for a bandwith of 25 KHz
VSAT: CHF 6 for a bandwith of 25 KHz

S) THE UK'S SATELLITE LICENSING REGIME

For satellite networks connected to the PSTN, two licences are required:

- one under the Telecommunications Act 1984, to authorise the running of sysytems and the provision of services

- one under the Wireless Telegraphy Act 1949 to permit the use of specified radio frequencies and ensure there is no interference to other services.

For satellite networks not connected to the PSTN:

- the running of systems and the provision of services is covered by a Class licence issued under the Telecommunications Act 1984, so that no individual authorisation is needed. When services are strictly restricted to internal use within a company for communications between different sites, a specific type of class licence, the Self Provision Licence, is granted under the Telecommunications Act.

- however, all fixed terminals with a transmit capability (not receive only earth stations) need to be licensed individually under the Wireless Telegraphy Act 1949.

Telecommunications Act 1984 licensing:

Earth stations communicating by satellite with a fixed terminal connected to the PSN (acting as a Hub) are covered by the class licence ONLY if the hub is

authorised for such connection in the UK under the Telecommunications Act 1984 (eg. if it belongs to a telecommunications carrier).

If the hub, connected to the PSN, is located abroad, any fixed terminal emitting from the UK will need an individual licence.
On the contrary, all mobile or transportable terminals (eg.SNG) are covered by the Class Licence, wherever the hub is located.

Licensing regime :	**Under the Telecommunications Act 1984**
fixed stations connected to PSTN (including VSAT hubs)	specific licence fee: £6,000 + £1,000 yearly renewal fee
mobile and transportable terminals connected to PSTN	class licence
fixed stations not connected to PSTN	class licence, or self provision licence if internal use
fixed stations indirectly connected to PSTN (through a hub station which is connected)	class licence if hub station has a specific licence, except when hub station located abroad: specific licence for each emitting station

Wireless Telegraphy Act 1949 licensing:

Each and every terminal operated under the Telecommunications Act 1984, whatever the regime (Specific or class licence), must be licensed under the Wireless Telegraphy Act 1949. Its regulations specify the standards to which equipments must comply and control their import, sale, manufacture and possession.

An exemption from this necessity already applies to receive-only terminals and is proposed for Euteltracs and Inmarsat C terminals.

There are four licence categories for operating earth stations in the fixed satellite service:

- permanent earth station licence: for large stations operating to a geostationary orbit. VSAT hub stations fall in this category.
- transportable earth station licence: for such applications as SNG, requiring short term up-linking from a location.
- VSAT earth station licence: will allow the licensee to operate any number of VSAT terminals in any configuration. The only condition is that the uplinks be confined to the non-shared frequency bands ie 14.4 - 14.25 GHz and 29.5 - 30 Ghz so as to facilitate co-ordination of the VSAT terminals.
- miscellaneous earth station licence: for special or unique applications that do not fall within the scope of the other three licences, eg tracking, telecommand and control, short term single event operations, etc.

The MOU applies to VSAT and transportable earth stations licences.

Licensing regime :	**Under the Wireless Telegraphy Act 1949:** licence for each earth station except receive-only stations.
Permanent earth stations, including VSAT hub stations	- Class I : bandwidth<100Khz operating to one satellite: annual fee £1,000 +£1,000 per additional satellite - Class II : 100Khz<bandwidth<1Mhz operating to one satellite: annual fee £5,000 +£1,000 per additional satellite - Class III : bandwidth>1Mhz operating to one satellite: annual fee £10,000 +£1,000 per additional satellite
Transportable earth stations	annual licence fee : £8,500
Very small aperture terminal	uplinks must be confined to the non-shared bands, ie 14.0-14.25 Ghz and 29.5-30Ghz. Annual licence fees are based on the number of terminals: 1-20 £1,000 21-100 £3,000 101-300 £6,000 301-500 £10,000 501-1000 £20,000 additional blocks of 100 terminals will attract a fee of £2,000 per annum.
Miscellaneous earth stations	fee charged on a case-by-case basis, either annual or for a particular event

Annex 4
August 1995

SUMMARY OF THE ERO STUDIES on FREQUENCY ASPECTS of VSAT AND SNG

The main purpose of the ERO study[15], carried out for the EC in August 1995, was mainly to produce a set of harmonised conditions for the use of the most adequate frequency bands in use in Europe for VSAT and SNG. At the moment the most suitable frequency band for VSAT and SNG within Europe is the 14-14.5 GHz band.

The purpose of this annex is to provide a summary of the sections of the above-mentioned ERO study which relate to frequency aspects.

1 - Frequency bands for VSAT and SNG

This annex is composed of elements of the ERO report. For further details it is necessary to refer to the ERO report itself.

As far as the frequency band 14-14.5 GHz is concerned, the studies have shown that the main problem is the sharing of this band with Fixed Services in the upper part of the uplink band. In essence the problem is limited to four CEPT-countries (France, Germany, Italy and UK) for which the transfer of fixed services from these bands to other bands will represent a very significant cost. Sharing between Fixed Satellite Services and Fixed Services in the downlink band seems possible in all the CEPT-countries analysed.

No real problem has been identified with the lower part of the uplink band, 14.00-14.25 Ghz, and it is recommended that VSAT and SNG have exclusive use of this part of the band.

At the moment it seems that sufficient frequency capacity is available for all satellite service providers in all European countries. However, it is recommended that those countries that have few or no fixed links in the upper band, and do not have any plans to put any in place, should take measures to keep the upper band for exclusive use by fixed satellite services.

For co-ordination issues the report recommends that steps be taken towards instituting a more integrated frequency co-ordination and site-clearance system across Europe. The report identifies several possible situations from which it appears that:

a) when a frequency allocation is used exclusively by fixed satellite services (e.g. 14.00-14.25 GHz), there is no requirement for frequency clearance, but site clearance may be required in areas such as airports.

b) when a frequency allocation is shared with fixed services (e.g. 14.25-14.50 GHz), there is a need for frequency co-ordination.

[15] Copyright of the European Commission (DG XIII)

c) when the situation differs between one country and its bordering countries co-ordination is required at national and international level.

In summary therefore, it can be seen that even in the most favourable circumstances there are two potential constraints to unhindered operations. In the first instance there is the requirement for international co-ordination when neighbouring countries use the same allocation for terrestrial services. Secondly in some countries there is a need to ensure compatibility with operations on other frequencies through a site clearance procedure.

In addition there are a number of ETSI Standards that are relevant. The Satellite Earth Stations and Systems (SES) committee continues to issue standards for to VSATs, SNG terminals, TV Receive Only terminals and Land Mobiles Earth Stations operating in various frequency bands. Those 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 given below:

➲ ETS 300 157:1992 Receive-only Very Small Aperture Terminals (VSATs) used for data distribution operating in the 11/12 GHz frequency bands
➲ ETS 300 159:1992 Transmit / receive Very Small Aperture Terminals (VSATs) used for data communication operating in the Fixed Satellite Service (FSS) 11/12/14 GHz frequency bands
➲ ETS 300 160:1992 Control and monitoring functions at a VSAT
➲ ETS 300 161:1992 Centralised control and monitoring functions for VSAT networks
➲ prETS 300 327 Satellite News Gathering (SNG) Transportable Earth Stations (TES) (13-14/11-12 GHz) - September 1994
➲ prETS 300 456 Test methods for Very Small Aperture Terminals (VSATs) 11/12/14 GHz frequency bands - September 1994

It has been determined that Common Technical Requirements (CTRs) need to be developed based on Directive 93/97/EEC. The CTRs are expected to refer to the necessary parts of existing standards. However, there is a potential delay involved here because the CTRs have yet to be prepared.

Further EMC standards for VSAT and SNG[16] are currently being prepared.

[16] Draft DE/RES-09020A 1 June 1995.

Annex 5
August 1995

Elements of the ERO report carried out for the EC on MSS

The main purpose of the ERO study[17], carried out for the EC in August 1995, was mainly to produce a set of harmonised conditions for the use of the most adequate frequency bands in use in Europe for MSS. At the moment the bands in use within Europe for MSS are part of the 1.5/1.6 Ghz and 11/12/14 Ghz bands.

The report on MSS also includes studies on the regulatory regime to be developed which will enable users of Mobile Satellite Services to carry and use their mobile satellite terminals anywhere in Europe, without frequency and administrative constraints.

The purpose of this annex is to provide a summary of the sections of the above-mentioned ERO studies which relate to both frequency aspects and the licensing of terminal equipment.

Frequency bands for MSS

This annex is composed of elements of the ERO report. For further details it is necessary to refer to the ERO report itself.

The 1.5/1.6 Ghz bands are in general available throughout the CEPT but congestion will probably occur in the future since the predicted spectrum requirements exceed availability. The users of these bands are Inmarsat-2 , 3 and GSO, the Russian systems Volna and Marafon, the European Space Agency systems Artemis and Marecs-A and the domestic Italian system Italsat 2.

With regard to the 11/12/14 GHZ bands, Euteltracs is the only user of these bands and therefore their availability in CEPT for other systems should be considered. The above-mentioned bands are allocated to MSS using geo-stationary satellites. For non-geo satellite systems other bands have been allocated such as 1.6/2.4 Ghz.

Sharing with fixed services is perceived as difficult by some administrations which prefer to limit the use of shared bands and therefore curtail the MSS spectrum resources.

In order to reduce the pressure on the 1.5/1.6 Ghz band and to extend spectrum resources for MSS, ERO suggested the following:

a) Extension of the 1.5/1.6 Ghz bands with 2 times 5Mhz, 1559-1564 Mhz/1660.5-1664.5 Mhz
b) Advancing the date of entry into force of the new MSS allocations in the 1.9/2.1 Ghz and 2.6 Ghz bands.

[17] Copyright of the European Commission (DG XIII)

c) Study on possible further world-wide extension of the 1.5/1.6 Ghz bands with the bands 1517-1525 Mhz and 1675-1710 Mhz.
d) Study on the flexible sharing approach, which could also be of use as a regulatory mechanism to optimise the use of available spectrum.

ERO has also proposed to study the sharing of frequency between MSS and fixed services in the bands 1.5/1.6 Ghz, 11/12/14 Ghz.

Free use of mobile terminal equipment

ERC has made several recommendations concerning the free circulation and use of Inmarsat-C, Inmarsat-M, Euteltracs, satellite paging and Traksat terminal equipment. The recommendations contain the following elements:

a) The NRAs shall not require an individual licence for the use of mobile satellite terminals.
b) The NRAs shall permit free circulation and use of terminals which have been type tested according to ERC recommendations.
c) The user must be a subscriber of an authorised service provider.
d) The terminal must bear an easily visible and identifiable mark.

ERO made a survey of the situation in CEPT countries which shows that with regard to Euteltracs and Inmarsat C, a large number of European countries have implemented these recommendations: Austria, Belgium, Bulgaria, Croatia, Denmark, Estonia, Finland, France, Hungary, Luxembourg, the Netherlands, Norway, Romania, Sweden, Switzerland, Turkey and the UK. Some countries have, however, not implemented them and do not allow the use of terminals to non-residents. Such countries require individual licences.

With regard to other systems fewer countries have implemented the ERC recommendations and the situation is therefore not satisfactory at the moment. However, some countries have stated that they intend to implement some of the recommendations very soon or that they are currently considering the possibility of implementing them.

ERC is currently studying a new recommendation which will include all mobile satellite terminals.

Annex 6
October 1997

Presentation and analysis of the licensing conditions of SATELLITE NETWORKS

The list of the licensing conditions for SN which is presented in this annex is based on the compilation of conditions found in national regulation- including radio aspects, the lists established in previous ETO reports on Bearer Data Services, Other liberalised services and S-PCS, and conditions listed in the MoU between four countries on the licensing of VSAT and SNG.

Licensing conditions are divided into three categories (as it has been done in the report):

* qualification conditions - requested from any applicant whatever the required authorisation is,
* conditions of operating satellite networks - based on telecommunication regulation and
* conditions of earth stations - based on radio-frequency regulation which include co-ordination and site clearance.

A list of conditions that may be required for land mobile earth stations (terminals) is given in section 4.

1 - Qualification conditions

Qualification conditions have been divided into two sub-categories:

- service provider's qualifications and
- information requested from the service provider in the application/declaration form.

These qualification conditions,which need to be fulfilled in order to obtain a network licence have, in at least one of the investigated countries, been identified as being:

1.1 SNO's qualifications

a) Nationality of the licensee and ownership restrictions

A pre-condition for obtaining a licence in one country is that the applicant is a person or a company residing in that country. The only alternative to this is that a foreign company must designate an authorised agent in the country in question. A restriction concerning the nationality of the applicant in terms of the interest held by a non-EU company not being allowed to exceed 20 % or 25% has also been identified in one country (France on public networks only). Such a restriction also exists in other non-European countries (e.g. the USA).

As has been shown in previous ETO studies, nationality restrictions prevent, restrict and distort competition and have the effect of limiting the development of domestic industry in the country imposing the restriction.

However, at present, some countries in Europe and in other regions of the world have maintained such restrictions. This unbalanced situation obliges countries which have no restrictions on nationality and ownership to impose reciprocity of rules on these two issues (nationality and ownership).

For EU countries no restrictions are allowed concerning European companies. It has also been shown that there is no actual reason for imposing nationality restriction on simple systems e.g. SN not open to the public (private). Imposing such restrictions could also prove to be in conflict with both the Union Treaty and the proposed directive on licensing.

ETO therefore proposes that no nationality restrictions be imposed on providers of SN not open to the public (private). For satellite networks open to the public, it could be used if reciprocity is not obtained from the non-EU country where the applicant is located. Nationality restrictions should therefore not be included in the list of harmonised list of licensing conditions valid within the Union.

b) Legally registered representative

In general this refers to the pre-condition which states that a service provider or network operator needs to be registered in the National Trade Register, at the Chamber of Commerce or equivalent bodies. If he is not registered, a legal representation may be required in the country where the service is to be provided. This pre-condition has not directly been identified in any of the countries investigated, but from earlier studies it is known to be a common condition in some of the EU-countries and many of the East and Central European countries.

This provision is not necessarily a provision specific to telecommunications regulation, but rather a general pre-condition for conducting any kind of business activities in those countries.

The condition involving a legally registered representative appears to be in conflict with article 59 of the Union Treaty, which implies that a Member State cannot require a service provider to establish himself in its territory before granting an authorisation to provide the service in question.

For this reason it is proposed that the condition of legal presence in the country of service provision not be included in the list of harmonised licensing conditions[18].

c) Technical capabilities

The service provider has to prove that he has adequate technical capacity to comply with the specific obligations of the requested licence by having qualified staff for the performance of the activity and by controlling the operation of the system. A justification for imposing such a condition could be to assure the subscibers 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.

[18] See comments from Portugal in annex 14

When authorisation is requested for new networks, proofs of technical capabilities are difficult to evaluate. Therefore milestones may de established between the applicant and NRA in order to make this evaluation during the period of implementing the network facilities.

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

d) Economic structure and financial viability

The service provider has to prove that he has an appropriate economic structure as well as the necessary financial resources to guarantee the establishment and effective management of the company. This is mainly relevant for networks open to the public.

The need for such a guarantee may also be justified by the fact that scarce resources are in question and by the need to limit to a minimum the number of possible discrepencies arising. Such a condition may require milestones to be implemented which must be respected by the applicant. However this second argument is a more controversial one.

When authorisation is requested for new networks, proof of financial viability of the whole project is difficult to provide from the very beginning. The situation is almost the same as for technical capabilities. Therefore milestones may also be established between the applicant and NRA in order to make this evaluation during the period of implementing the network facilities. Normally a single list of milestones is established for both technical capabilities and financial viability.

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.

e) Accounting rules

The service provider must prove that he has an updated and regularly organised accounting system in accordance with the Official Plan of Accounts, which is suitable for the analyses required by the project which he intends to develop. This provision is not necessarily specific to telecommunications regulation, but rather a general pre-condition for conducting any kind of business activities in those countries. Out of the list of countries studied in the report, Portugal is the only one to impose this condition.

Special conditions on accounting rules are known to be imposed on PTO's that conduct activities in both a monopoly or reserved area and a liberalised area where the PTO has a significant market power (ONP directive 97/33/EC). Such conditions should be incorporated either into the licences granted to PTO's or into general regulation. There is no reason to impose the condition on market players in a fully liberalised environment and SN not open to the public should clearly be exempted from any qualification conditions related to accounting.

ETO proposes that this condition not be included in the harmonised list of licensing conditions of SN with the exception of operators having a significant

market power, which issue is being studied by ETO in another work order for the EC[19].

f) Absence of debts to the state

The service provider has to prove that he does not owe any taxes, contributions or any other amounts to the State or to the Social Security. The provision is not necessarily a provision specific to telecommunications regulation, but rather a general pre-condition for conducting any kind of business activities in these countries. Out of the list of countries studied in the report, Portugal is the only one to impose this condition.

Again this condition appears to be a general provision, not specific to the provision of telecommunications services, and **should therefore not be included in the harmonised list of licensing conditions of SN[20].**

1.2 Information requested from the SNO in the application/declaration form

In countries where individual licensing or declaration regimes apply specific information must be given by the service provider/network operator on the forms which need to be filled out and lodged with the administrations for the purpose of processing the applications and declarations. In countries where a Class Licence is required certain information may be asked by the NRA for the purpose of processing the Class Licence.

g) SNO identification

The SNO must provide identification in all countries where the service is provided, giving his name, trading name, address and telephone number. When the applicant is a company, the name and function of a contact person is also asked, along with the business registration number, the country of registration and the name of the body under which the company is registered.

It is evident that NRAs need to be able to identify operators.

ETO therefore proposes that this condition be included in the harmonised list of licensing conditions that may be imposed for the provision of SN.

h) Indication of the service

The indication of the type of the service must contain a definition of the service and its trading name. This information is essential for identifying the kind of authorisation the applicant must obtain in addition to the network authorisation. However, the information need not necessarily include too many details and should allow the identification of the service 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

[19] See comments from Portugal in annex 14

[20] See comments from Portugal in annex 14

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 this condition be included in the harmonised list of licensing condition that may be imposed for the provision of SN.

i) 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.

A network plan, consisting of the configuration and topology of the network, is requested. Information requested may include the location of the mother station (hub) and control centres, a description of the routeing of calls and a description of interconnection with other networks.

This condition may be important in order to establish whether the operator is providing network facilities to the public.

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

ETO therefore proposes that this condition be included in the licensing condition referred as "description of the system".

j) 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.

ETO therefore proposes that this condition be included in the harmonised list of licensing conditions of SN.

k) Conditions of permanence, availability and quality of the service

In a competitive environment the customer is, in theory, free to find an operator of his own choice. Market mechanisms should ensure that information on permanence, availability and quality are given to the customer. There is no specific reason for making these conditions specific to the regulation of satellite networks. The issues should be regulated through competition or consumer protection legislation for which ETO is currently undertaking a study for the EC.

ETO proposes that conditions of permanence, availability and quality should not be included in the harmonised list of licensing conditions of SN.

l) Tariffs and delivery terms or supply conditions

The aim of this condition is to verify that tariffs, delivery terms and supply conditions of the service comply with competition rules. The applicant must also indicate where this information may be obtained in an easy manner by customers.

Information on these issues is normally given to subscribers by the operator. This information is of no relevance for the granting of authorisation with the exception of dominant operators. In addition it should be noted that these issues are regulated by general law on consumer protection and competion rules.

ETO therefore proposes that information on tariffs, delivery terms and supply conditions not be included in the harmonised licensing conditions of SN.

m) Market information

This information can refer to the target customer-sector/segment or to the estimated turnover of the service in the first three years.
This information is of no relevance to the satellite network licence.

ETO therefore proposes that information on the market not be included in the harmonised list of licensing conditions of SN.

Additionally, it can be mentioned that ETO will undertake a study on dominant operators for which market information may be required.

n) Coverage

Coverage is a condition which has been identified for MSS only. This condition is mentioned in ETO's study on S-PCS and is included in the licensing regimes of satellite systems in a certain number of countries.

It is easy for a satellite system to provide services within a large area covering more than one European country. In consequence, the coverage of a single country is provided automatically.
However, international communications may be subject to specific licensing regimes and the information on coverage is therefore important, in particular in order to know exactly which countries are involved in the licensing procedure, and which countries have authorised the service even though no terrestrial equipment has been installed in the country in question.

Details are missing in national regulations concerning the interpretation of this condition for MSS, for this reason it is useful to refer to the situation with regard to the licensing conditions for Mobile terrestrial systems. This condition is included in almost all European countries for the licensing of terrestrial mobile system e.g. GSM or DCS 1800. Coverage conditions may be imposed on the coverage of either a percentage of the population or of a percentage of the territory over a different periods of time, such as one, three and five years.

Such detailed information is probably not necessary for satellite services and information requested from the applicant should only be related to those countries in which the service can be provided nationally.

ETO proposes that this condition be included in the harmonised list of conditions for MSS.

Conclusion on qualification conditions:

The maximum of conditions that may be imposed on a service provider for the purpose of qualifying for an authorisation should be:

* SNO identification: name, trading name, address, telephone number, name of contact person, business registration details;
* Description of the service;
* Description of the system;
* Technical capabilities (public SN only);
* Financial viability (public SN only);
* Coverage (only for MSS if it is confirmed by ECTRA).

2 - Operating conditions of satellite networks based on telecommunication regulation

These conditions are based on telecommunication laws and may be common to all networks. When providing network facilities, the operator has to respect the "conditions for operating". These conditions are a set of obligations and rights; some of them are general rules that must be complied with by operators, while others create a framework which may be applied to a specific network.

These conditions may be found in general legislation, both national and European, in class or individual licences. There is also the possibility of their being mentioned only in either class or individual licences or a definition of them given in telecommunications regulations . At EU level Community Law applies.

The provision of satellite networks was liberalised by Commission Directive 94/46/EC of 13 October 1994 amending Commission Directive 90/388/EEC of 28 June 1990 (The Service Directive). According to this directive all liberalised services must be provided in compliance with the essential requirements and with public service requirements in the form of trade regulations related to conditions of permanence, availability and quality of the service.

Other relevant sections of Community law are those regarding competition rules and fair trading, dataprotection/privacy protection/confidentiality and free circulation of services.

a) Essential requirements

ETO is currently studying this issue for the EC and results will be carried out in February 1998. The study will provide clear description of each essential requirement, a list of detailed measures which can be imposed to licensees and distinction between different kinds of services and operators.
The essential requirements are stipulated in the Service Directive and cover the following:

- Security of network operation
- Maintenance of network integrity
- Interoperability of services
- Data protection
-Protection of the environment
- Town and country planning
- Efficient use of frequencies
- Avoidance of harmful interferences (between satellite telecommunications systems and other space-based or terrestrial technical systems)

Throughout the study, the licensing conditions are categorised according to the phase in the licensing process in which they are used. Distinction is made between:
-conditions to access the market: efficient use of frequencies,
-operating conditions: all of the above-listed essential requirements,
-conditions of interconnection: all of them with the exception of efficient use of frequencies and avoidance of harmful interferences.

Non-compliance with the essential requirements, as defined in EU legislation, is the only justification that may be used to restrict access to public telecommunications networks or services. The concept of essential requirements has been dealt with in different ways in different countries.

The observance of essential requirements is one of the fundamental principles of Community Law. One of the most significant applicable essential requirements is specifically related to satellite networks only, 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.

ETO proposes that respect of essential requirements be included in the harmonised list of licensing condition for the provision of SN.

b) Agreement with satellite organisations

A common condition, specific to the provision of satellite-based telecommunications networks, is that an agreement with a satellite organisation has to be obtained beforehand. In some countries agreement with a satellite organisation is an operating condition and may be obtained afterward. This is the case in particular for applying for an authorisation for VSAT/SNG in the four countries having signed an MoU (Fr, G, NL, UK).

ETO therefore proposes that this condition be included in the harmonised list of licensing conditions for 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 telecommunications services such as the provision of public voice telephony, it seems appropriate to include restriction of provision of telecommunications services in question in the harmonised list of licensing conditions of SN.

Voice services to Closed User Groups should, however, not be prohibited, since this area is already liberalised in EU and EEA countries. Public voice telephony will also be liberalised by 1 January 1998 in almost all EU and EEA countries, except those which have obtained the authorisation from the EC to delay such liberalisation.

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

d) Competition rules on fair trading

The main legislative principles are stipulated in articles 85 and 86 of the Treaty on the European Union. Article 85 deals with agreements, decisions and practices that might restrict competition and article 86 deals with abuse of a dominant position by one or more undertakings.

In 1991, the Commission published guidelines on the application of the Community competition rules to the telecommunications sector. These guidelines are mainly concerned with the dominant position of public operators having activities in both the monopoly and the competition area. A revised version has been prepared in 1996 concerning these operators being in a dominant position in a market fully open to competition.

The main legislative principles on competition rules and fair trading are stipulated in articles 85 and 86 of the Treaty on the European Union. The provisions are of a general nature and apply to all activities, not only telecommunications.

The provisions should therefore not be included in the harmonised list of licensing conditions of SN.

e) Data protection, privacy protection and confidentiality

A European Parliament and Council Directive on the protection of individuals with regard to the processing of personal data and on the free movement of such data (95/46/EC) was approved in July 1995 and was published in the Official Journal of the EC on the 24 October 1995.

General data protection rules are typically found in general legislation, i.e. not specific to the telecommunications sector.

The Council has adopted a common position on the directive proposed by the EC on data protection which is specific to the provision of telecommunications services on mobile networks and digital fixed networks. This directive will presumably be implemented in telecommunications specific regulation on a national level.

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

f) War, defence and national security requirements

In some exceptional cases, due to war, defence and national security requirements, a majority of countries allow access to the network, to information or to 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 only in other legislation.

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 licensing conditions that may be imposed on SN.

g) Consumer protection

ETO is currently studying this issue for the EC and results will be carried out in Autumn 1997. In consequence, detailed conditions on consumer protection may be added to the harmonised list of licensing conditions of SN when proposals of this study will be made. However, taking into account the situation in a great number of countries it may be proposed to request from operators the provision of information to users. This information should be provided at the request of users in a manner which is easily accessible and intelligible.

Information to users at their request should therefore be included in the harmonised list of licensing conditions of SN, and additional detailed conditions on consumer protection could be proposed depending on the results of ETO study on this issue.

h) Access to leased lines/PSTN

To give access to the public telecommunications network in terms of leased lines or access to the public switched telephony network can be considered an obligation imposed on the public/dominant operator with significant market power notified by an NRA. It therefore appears not to be necessary to include the condition in the harmonised licensing conditions of SN.

It would appear more appropriate to include the condition in the licence of operators with SMP in accordance with the ONP directives.

ETO proposes that this condition not be included in the harmonised list of licensing conditions of SN.

i) Information for users

In some countries the operator is obliged to make public - a priori or on request - information on the general supply conditions of services and network facilities. The purpose of such a condition is to ensure that supply conditions of services is "transparent". In some countries, breaches of this obligation may lead to the withdrawal of a licence.

This issue is included in the conditions for consumer protection. However provision of information may be extended to service providers. This is important for network facilities and in particular the provision of leased lines, connection to the network in question, tariffs and charges etc.

ETO therefore proposes that service providers will be included in the concept of user for the provision of information at the user's request already proposed to be included in the harmonised list of licensing conditions of SN.

j) Access to numbers

Access to numbers in the public numbering plan may be of importance to the satellite network operators, to the extent that the satellite networks are connected to the public networks. It could be important for many reasons, e.g. user-friendliness, efficient establishment of a competitive environment, portability, national and international routeing etc. SNO should have the right to obtain blocks of numbers, just like other operators of fixed terrestrial 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.

The condition is therefore proposed to be included in the harmonised list of licensing conditions as a right of operators of SN.

k) Interconnection

Interconnection rights and obligations imposed on operators and service providers are defined in ONP directive 97/33/EC. This condition should be included in the harmonised list of licensing conditions of SN open to the public. However additional obligations are imposed on operators having a significant market power.

The condition is therefore proposed to be included in the harmonised list of licensing conditions.

l) Lawful interception

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 15. This may be considered as part of the condition on national security. The reason it may be mentioned separately in the list of licensing conditions is because NRAs are responsible for verifying that legal interception is possible when granting a licence. Normally satellite systems have terrestrial equipment which make interception possible; however new systems will provide satellite services without any terrestrial equipment in a large number of countries.

This condition will therefore soon become very important when the above situation appears in the near future for MSS systems. For MSS, legal interception must

therefore be underlined as an important element of the condition on national security. Failure to comply with this condition could lead to the withdrawal of an authorisation. For other systems it is not necessary to mention this element of National security due to the fact that application of general law can be managed separately.

The condition is therefore proposed to be included in the harmonised list of licensing conditions for the authorisation of MSS.

m) Universal service obligations or provision.

Normally satellite systems provide nationwide services and would therefore not be put under US obligations. However this issue is regulated separately and no proposal can be made for satellite networks in general

Conclusions on operating conditions:

The maximum number of conditions that may be imposed on a service provider in terms of operating a service should be:

* Respect of essential requirements
* Agreement with satellite organisation
* Provision of public voice telephony
* Data protection etc. specific to telecommunications
* Information for users on request
* Access to numbers in the public numbering plan
* Interconnection rights and obligations (SN open to the public)
* Lawful interception (for MSS)

3 - Conditions of earth stations based on radio-frequency regulations which include co-ordination and site clearance conditions.

The national radio regulations and the application forms used in inter alia the OSS-procedure between Germany, France, the Netherlands and the UK show that much more information, apart from that mentioned above, is asked of the network operator. The proposed conditions for operating earth stations are mainly radiocommunication conditions, which include co-ordination and site clearance.

Below a list of information is given including an analysis of each item:

a) Shareholding structure, meaning ownership and relationships with suppliers and customers.

This general requirement is already mentioned in the list of common qualification condition. As this has no clear link with radio regulation and certainly no relationship with the licensing of earth stations.

ETO proposes to exclude this item from the harmonised list of licensing conditions of earth stations.

b) The type of service intended to be offered (data, video, audio, phone, for own use, for the public, for third parties**;**

Such information is already mentioned in the list of common qualification conditions and therefore must not be required a second time.

ETO proposes that information on the type of service to be offered should be included in the list of common conditions.

c) The setting up and management of Closed User Groups, meaning establishment, location and management of the user database, dependent addressing modes, the procedure for introducing a new independent station;

This is included in the above condition and therefore information on CUGs should be part of the information on common qualification conditions.

ETO proposes to exclude this item from the list of licensing conditions of earth stations.

d) Technical details of satellites to be used (name and location), statement of commissioning (approval number from satellite organisations/own registration number)

Information on the technical details of the satellite may be justified by co-ordination procedures and site clearance. The statement on commissioning is included in the agreement between the licensee and the space segment operator, which is already mentioned in the list of common licensing conditions **ETO proposes that information on the technical details of satellites should be included in the list of information for co-ordination and site clearance procedures.**

e) Station details (manufacturer/model/type/size)

This is the identification of the earth station and should be considered in conjunction with the type approval referred to in "f".

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

f) Documentation for type approval of equipment;

Type approval is required in almost all European countries and is justified by the need to respect the essential requirements. In countries where type approval is not required, a certificate from the space segment operator could be required instead.

ETO proposes that documentation for type approval equipment should be included in the harmonised list of licensing conditions that may be imposed for earth station licence.

g) 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);

It is part of the essential requirements and imposed by all EU countries.

ETO proposes that description of measures that will be taken to protect the integrity of the system should be included in the harmonised list of licensing conditions that may be imposed for earth station licence.

h) Technical information on the antennas

Such a condition may be justified for interference purposes and co-ordination procedures. A list of the information required is provided in the ERO report on VSAT and SNG (boresight gain, the half power beam width, the radiation pattern, off-axis gain pattern, polarisation discrimination) and details are provided in ETSI standards.

ETO proposes that information on technical information on antennas should be included in the harmonised list of licensing conditions that may be imposed for earth station licence (co-ordination and site clearance procedures).

i) Transmission power

Such a condition may be justified for interference purposes and co-ordination procedures.

ETO proposes that information on transmission power should be included in harmonised list of licensing conditions that may be imposed for earth station licence (co-ordination and site clearance procedures).

j) List of addresses identifying the location of satellite earth stations- status of the applicant (POA, RPOA);

Information on the location of the earth station is justified for site clearance.

ETO proposes that information on the location of satellite earth stations should be included in the harmonised list of licensing conditions that may be imposed for earth station licence (co-ordination and site clearance procedures).

k) Classification of network (< 15 kbit/s, > 15 kbit/s);

It might be justified in order to evaluate the importance of the transmission capacity. However, it is preferable to request information on the bandwidth.

ETO proposes to exclude this item from the harmonised list of licensing conditions that may be imposed for earth station licence.

l) Certification of protection of human beings from electromagnetic fields

It is part of the essential requirements and imposed by all EU countries.

ETO proposes that certification of protection of human beings from electromagnetic fields should be included in the harmonised list of licensing conditions that may be imposed for earth station licence.

m) Assigned frequency band (in kHz)

Essential information for radio regulation.

ETO proposes that information on assigned frequency band should be included in the harmonised list of licensing conditions that may be imposed for earth station licence.

n) Connection to public network

Already included in the list of common qualification conditions.

ETO proposes that connection to public network should be included in the list of common qualification conditions.

o) Access to space segment (carrier modulation and multiple access techniques implemented in the network);

This information is useful for designation of emission and could be included in section "d" on satellite. The provision of the information is also justified if co-ordination is required.

ETO proposes that access to space segment should be included in the harmonised list of licensing conditions that may be imposed for earth station licence (co-ordination and site clearance procedures).

p) Frame structure (description clearly showing the portions of the frame relating to frame management, traffic and signalling);

ETO proposes that frame structure should be included in the harmonised list of licensing conditions that may be imposed for earth station licence.

q) Aerial specification of main station and base band equipment

Information on aerial specification is justified for co-ordination and site clearance purposes. No justification has been found for such a condition with regard to base band equipment.

ETO proposes that aerial specification of main station and base band equipment should be included in the harmonised list of licensing conditions that may be imposed for earth station licence (co-ordination and site clearance procedures).

r) Documentation of valid trade licence

No argument has been found to justify the provision of such information.

ETO proposes to exclude this item from the harmonised list of licensing conditions of earth stations.

s) Station details such as geographical co-ordinates;

Such a condition is justified for site clearance and could be included in section e.

ETO proposes that station details such as geographical co-ordinates should be included in the harmonised list of licensing conditions that may be imposed for earth station licence (co-ordination and site clearance procedures).

Each of the above-listed items is requested in at least one of the following countries, the application forms of which have been thoroughly studied: Austria, Switzerland, the Netherlands, Germany, United Kingdom, Denmark, France and Belgium.

Conclusions on conditions of earth stations based on radio-frequency regulations:

Qualification Conditions for earth stations:

* Station details
* Integrity of the system
* Protection of human beings
* Documentation for type approval of equipment
* Assigned frequency bands

Conditions on co-ordination and site clearance for earth stations

* Technical details on satellites,
* Technical information on the antennas,
* Transmission power of the earth stations,
* List of addresses identifying the locations of satellite earth stations,
* Access to space segment,
* Aerial specification of main station,
* Station details such as geographical co-ordinates.

4. Conditions of land mobile earth stations (hand-held terminals)

The licensing conditions of terminal equipment have been listed in the previous ETO study on S-PCS and can therefore also be used for MSS terminals:

The ERO study on MSS, presented in annex 5 of this report, also made proposals on terminal equipment licensing.

A-Conditions required for terminal equipment:

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

B-Information to be provided:

-Coverage,
-Frequency bands,
-Interconnection,

Annex 7
Oct 97

Licensing conditions and procedures included in annex of the E.U. Directive on a common framework for general authorisation and individual Licences in the field of telecommunication services

This Directive on Licensing aims at providing means to ensure authorisation regimes do not impose undue burdens on operators in terms of licensing conditions as well as procedures. Even if it is necessary to impose some conditions on service providers, it is important to focus on the fact that an efficient development of the sector is best achieved on the basis of the lightest possible authorisation regimes.

The directive therefore proposes, that wherever possible, general authorisations regimes should apply to the provision of telecommunication services. Individual licences may be required in a limited number of cases, e.g. use of frequency resource, public network and services, dominant position etc...

The first main principle of the licensing directive is that authorisations may only contain the conditions predefined in annex 1 of the proposal. The conditions shall be objectively justified in relation to the service concerned and they should be non-discriminatory, proportionate and transparent. The conditions listed are:

1. Any conditions which are attached to authorisations must be consistent with the competition rules of the Treaty.

2. Conditions that may be attached to all authorisations, where justified and subject to the principle of proportionality

   2.1. conditions intended to ensure compliance with relevant essential requirements,

   2.2. conditions linked to the provision of information reasonably required for the verification of compliance with applicable conditions for statistical purposes,

   2.3. conditions intended to prevent anti-competitive behaviour in telecommunications markets, including measures to ensure that tariffs are non-discriminatory and do not distort competition,

   2.4. conditions relating to the effective and efficient use of the numbering capacity.

3. Specific conditions which may be attached to general authorisations for the provision of publicly available telecommunications services, and of telecommunications networks that are required for the provision of such services, where justified and subject to the principle of proportionality:

3.1. conditions relating to the protection of users and subscribers in relation particularly to
- the prior approval by NRAs of the standard subscriber contract
- the provision of detailed and accurate billing
- the provision of a procedure for the settlement of disputes,
- publication and adequate notice of change in access conditions, including tariffs, quality and availability of the service

3.2. financial contributions to the provision of universal service, in accordance with Community law.

3.3. communication of customer database information necessary for the provision of universal directory information.

3.4. provision of emergency services

3.5. special arrangements for disabled people

3.6. conditions relating to the interconnection of networks and the interoperability of services, in accordance with the directive on interconnection and obligations under Community law

4. Specific conditions that may be attached to individual licences, where justified and subject to the principle of proportionality

4.1. specific conditions linked to the allocation of numbering rights (compliance with national numbering schemes...)

4.2. specific conditions linked to the effective use and efficient management of radio frequencies

4.3. specific environmental and specific town and country planning requirements, including conditions linked to the granting of access to public land and conditions linked to collocation and facility sharing

4.4. maximum duration, which shall not be unreasonably short, in particular in order to ensure efficient use of radio frequencies or numbers or to grant access to public or private land, without prejudice to other provisions concerning the withdrawal or the suspension of licences

4.5. provision of universal service obligations in accordance with the directives on interconnection and on the ONP directive 95/62/EC on voice telephony

4.6. conditions applied to operators having significant market position, as notified by member states under the directive on interconnection, intented to guarantee interconnection or the control of significant market power

4.7. conditions concerning ownership which comply with Community law and the community commitments vis-à-vis third countries.

4.8. requirements relating to quality, availability and permanence of a service or network, including the financial, managerial and technical competence of the applicant and

conditions setting a minimum period of operation and including, where appropriate and in accordance with Community law, the mandatory provision of publicly available telecommunications services and public telecommunications networks

4.9. Specific conditions relating to the provision of leased lines in accordance with Council Directive 92/44/EC of June 1992 on the applicatiion of open network provision to leased lines.

5. The list of conditions shall be without prejudice to:

- any other legal conditions which are not specific to the telecommunications sector;

- 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.

Annex 8
April 96

ITU PROCEDURES

1. The ITU Radio Regulation.

The very first document dealing with Radiocommunication regulation, which in many ways can be seen as the basis of the Radio Regulation (RR), was published in 1903 at the preliminary conference on Wireless Telegraphy in Berlin. It contained only 8 articles and was a mere 2 pages in length. Since then, the situation has changed dramatically; the RR now contains 69 articles and 45 appendices, presented in 3 volumes - a total of 2,700 pages. WRC 95 reviewed these Radio Regulations.

The RR procedures for the notification and recording of radio-frequency assignments were introduced in 1938 and have been modified and extended over a dozen conferences. Many administrations find the procedures complicated, difficult to understand and even hard to apply. The plenipotentiary conference held in Nice in 1988 established a "Voluntary Group of Experts" (VGE), whose function was to endeavour to simplify the RR. The VGE stated that no alternative approach could be established. They did, however, propose some modifications for simplifying the existing procedures and for preserving the rights and obligations of Administrations. Their proposals were approved at the Council session in 1994.

The space regulations on frequency and orbital resources have been drawn up in such a way that an orbit and spectrum distribution is individually managed and negotiated by national administrations. No supranational body exists to allocate these resources or to arbitrate in the case of disagreement. ITU has neither the power to enforce decisions on frequency allocation nor does it have any effective control functions. Consequently, the exploitation of orbit/spectrum resource is based on goodwill between administrations and on recognition of the fact that mutual interests will lead to mutual observance of the rules and regulations established by the international community in order to avoid radio interference and to promote equitable access and efficient usage.

The United Nations (UN) stipulates that outer space (in contrast to air space which is under national sovereignty) is not subject to national appropriation, but is free for exploitation and use by all States in conformity with international regulations. The UN regulations declare that States retain jurisdiction and control over objects that they have launched into outer space and that they are responsible for space activities carried out by any of their private nationals or firms (even if such a state does not excercise any direct or indirect control over such activities). States are thus obliged to establish appropriate control and supervision (normally in form of licences).

2. Presentation of the ITU procedures on frequency co-ordination.

The procedure for satellite network co-ordination is based on the principle that the right to use a satellite position should be acquired through negotiation among administrations concerned. This is the aim of ITU Radio Regulation, in particular its articles 11, 13, 15 and 15A dealing with co-ordination notification and registration of frequency assignment and orbital position. ITU has two main roles concerning co-ordination procedures; first it is the guardian of these procedures and second, it is in charge of secretarial functions. The Radio Regulations Board (RRB) has replaced the International Frequency Registration Board (IFRB) in its role of interpreting and approving, as necessary, detailed Rules of Procedures in accordance with the RR and with any Conference decision. These rules are to be used by the Radiocommunication Bureau (BR) and the Administrations involved in the application of the provision of the RR.

National contact points are the National Telecommunications Administrations which represent their Governments (The signatories of the ITU convention). Operators also participate in the procedure through their respective national administrations. Operational agreement are often established through direct negotiations between operators.

The purpose of the ITU procedure is to provide access to the the frequency spectrum for stations or specific service in a country located in a specific region[21]. This includes assignment and registration of frequencies and orbital position of satellites concerned. For this purpose, information on several elements of a system are required including the characteristics of earth stations, satellite orbital position, signal parameters and antennae. ITU procedures are mandatory in one of the three following circumstances and this includes advance publication of information and co-ordination.:

* Avoidance of any harmful interference[22] between new radio systems and existing protected systems (RR 1489),
* Establishment of international radiocommunication transmission (RR 1490),
* Obtaining international recognition for radiocommunication transmission (RR1491).

The area over which frequency is transmitted is not always the same as the administration's territory. When the frequency area covers all or part of the territory of another administration and overlaps into other frequency bands, as is the case for global services, the administrations concerned must reach an agreement. Such agreements can be obtained before the procedure commences or during the procedure, and they are treated by ITU as being separate from the co-ordination agreement.

The assignment of frequency to radio stations remains a national responsibility within the limits of the ITU rules. The advantage of the ITU procedures for international satellite services is that international recognition is obtained after these procedures have been

[21] Three regions have been defined: 1 is Europe, Africa and Russia including its Asian part; 2 is America (north, central and south); 3 is Australia and Asia.

[22] Interference is defined by RR 160 as: "*The effect of unwanted energy due to one or a combination of emissions, radiations, or inductions upon reception in a radiocommunication system, manifested by any performance, degradation, misinterpretation, or loss of information which could be extracted in the absence of such unwanted energy*"
Harmful interference is defined by RR 163 as follows: " *Interference which endangers the functioning of a radionavigation service or of other safety services or seriously degrades, obstructs, or repeatedly interrupts a radiocommunication service operating in accordance with these Radio Regulations*."

successfully completed. The Administration notifying the ITU of the intended use of a radiocommunication system has some specific responsibilities with regard to overlapping frequency areas.

Two different approaches have been defined for the procedure for allocation of frequencies to space satellite services. The first is rather rigid and not adapted to rapid evolution in technologies. The second approach is the most suitable one at present for developed countries. The other countries often prefer the first procedure including planning of frequency spectrum.

1. A procedure for the use of frequency bands for which a plan has been established and approved by a ITU conference. The procedure only relates to some frequency bands. Frequency bands used for S-PCS are not covered by plans. Plan(s) in 30 and 30A of the RR have been established for the allocation of frequencies to broadcasting services. Appendix 30B of the RR has been established for the allotment of frequencies to fixed satellite services. The procedure includes three steps:

   * An a priori plan, imposing a definition of all the characteristics of a system several years in advance,
   * A modification procedure, allowing evolution of the initial plan and giving this procedure flexibility, but also requiring the provision of detailed information,
   * An allotment plan, i.e. pre-allocation of a range of possible orbitals and/or frequencies before a final choice can be made by the applicant:

2. Procedure for the use of frequency bands where no plan exists and where co-ordination is required:

   * Advance Publication Information (API), also called pre-co-ordination, through special sections in ITU's weekly circular;
   * Co-ordination organised between the applicant and all operators and Administrations involved, the latter may invite operators to participate;
   * Registration in the Master International Frequency Register.

3. Procedures applying to non-planned bands.

This annex only provides some information on the second procedure which is the most currently used procedure (articles 11 and 13 of the RR). The procedure is based on the publication of required information that has been previously checked by ITU and on which comments are requested from Administrations. Application forms have been established for all type of systems and are treated by ITU in order of their receipt.

The procedures take into account the different categories of allocation that have been established in the table on frequency allocation or in its footnotes:

- primary or permitted,
- secondary or subject to not causing interference,
- subject to the application of certain procedures before being recognised on an equal footing with other services sharing the same band.

The maximum total duration of the three phases cannot exceed 9 years, starting from the submission of the API by ITU. The co-ordination phase must normally be carried out within 2 to 6 years before the service is provided and co-ordination of the radio systems involved can be organised 6 months after the API.

Protection for a system is granted to the applicant for the duration of the procedure after ITU has received a complete application form for the co-ordination procedure. Ongoing protection is granted for countries or areas where the registration has been accepted, this means where co-ordination has been successfully completed.

* Advance Publication of Information (API)

The aim of the API is to inform other Administrations (and through them other operators) of the project to establish a new space radiocommunications system and to define where and for which systems the co-ordination procedure is needed. Applicants, at this point in time, do not need to indicate the exact frequencies they want but only the bands in which frequencies are intended to be used. API also allows ITU to check that its rules are not contradicted. The applicant must complete a submission form and provide all the required information. This form is transmitted to ITU by the National Administration. After ITU has checked that all the information given is valid, it is published in section A of the weekly circular addressed to all Administrations[23]. Administrations are invited to commenton the publication within 4 months, and to state whether or not they believe that harmful interference could occur with regard to their sytem and that co-ordination is required. Comments received are published in section B of the same ITU weekly circular and quarterly publication.
The applicant can decide to commence the co-ordination procedure 6 months after the first publication in section A[24]. Despite being the first to submit the relevant information to the API, the API does not give any special right or priority[25] to notifying administration.

* Co-ordination

To start co-ordination a new and more detailed submission must be established and transmitted to ITU by the National Administration. Once again, ITU checks that the information is complete and valid. Following this, it is published in section C of the ITU weekly circular and similarly in it's quarterly publication. The ITU task also includes an assessment of the probability of harmful interference. During this phase the applicant must contact all the Administrations involved by sending a "request for co-ordination" to each of them and solve, by bi or multilateral negociation, all problems of interference. Other Operators may also be involved in the procedure so that the occurrence of harmful interference is minimised, and alternative solutions may be easily found where interference does occur. Where co-ordination has been successfully achieved, results are notified to the ITU. No time limit for the organisation of such a co-ordination procedure has been defined. Co-ordination of non-geostationary satellite networks in some particular bands (mainly MSS and its feeder links) is subject to the procedure involved in resolution 46[26].

[23] Information contained in the weekly circular is also published in the quarterly publication of the Space Network List.
[24] Non-geostationary satellites are not taken into account whithin the procedure.
[25] Delays on API procedure is currently six month.
[26] Delays on co-ordination procedures is currently 18 months.

* Registration.

The last phase of the procedure, after a successful result has been obtained in the co-ordination process, is the recording in the Master International Frequency Register (MIFR) of the results. The information must have been previously validated by ITU. The frequency bands must be registered at the latest 9 years after the first API publication by ITU in section A of its weekly circular and quarterly publication. Registration must be carried out before earth and space stations start operating radio transmission. This time limit does not include the launching of additional earth and space stations. In view of the fact that the main element in a space network is the space station, it has been decided that an earth station cannot be recorded in the MIFR before first recording its associated space station. Normally both stations must be considered in parallel and registered together.

Annex 9
April 1996

CONCLUSIONS OF THE STUDY CARRIED OUT BY ETO FOR THE EC ON S-PCS

This annex presents the conclusions of the report carried out by ETO on behalf of ECTRA for the European Commission. It should be noted that, on april 1996, ECTRA considered the report as presenting the method that Europe should follow licensing S-PCS. ERC which is, like ECTRA, a committee of the CEPT was consulted on the frequency aspect of the report. Both committees of the CEPT concludes that further studies need to be undertaken in order to precisely define such a licensing regime.

ERC and ECTRA adopted in early July 1997 a number of decisions on frequency bands and established a Milestones Review committee, which is presented in annex 13.

The granting of licences for S-PCS is an issue which is still currently under discussion within the Union and the CEPT, a position on which is expected in mid-1998. For this reason a final decision cannot be made before this position has been established, whatever its status.

Proposal 1: definition.

Radiocommunication-based public services offered to end users, where there is direct communication from terminal equipment, including handheld terminals, to satellites.

Proposal 2: the procedure.

- ECTRA should request that ETO may undertake the Invitation in co-operation with ERO (for frequency-related issues);

- ECTRA and ERC could set up a “panel” in order to analyse the information received from the Invitation, to propose recommendations for an ERC decision, and to assess the relevancy of establishing a selection process;

- If necessary, ERC could make decision(s) on which frequency bands to reserve for S-PCS and if appropriate, on the splitting of these bands between the two transmission technologies in the 1.6/2.4 Ghz MSS bands;

- If necessary a selection process should be established in order to select a limited number of operators;

- ECTRA and ERC should adopt a coordinated licensing procedure, which may include the OSS procedure and the harmonisation of S-PCS licensing elements;

- ECTRA should request ETO to administrate the OSS procedure on behalf of the signatories of the arrangement.

Proposal 3 : Information requested from interested parties (Consortia, Earth stations operators and national service providers).

- Proof of financial status (all),
- Ownership of the consortium (C or NSP),
- Lawful interception means (C or NSP),
- Relevant characteristics on the efficient use of frequency bands (all),
- Data protection guarantees (NSP),
- Relevant experience and technical expertise (C and ES),
- Provision of the service to individual users (C or NSP).
- Coverage of European territory and of world (surface and population) (C or NSP),
- Description of the system (all),
- Frequency bands requested for the provision of the service throughout Europe and transmission technology (all),
- Interconnection with public networks in CEPT countries (C or ES),
- Location of earth stations in CEPT countries (C or ES),
- Availability of terminal specifications[27] (C or NSP),
- Provision of emergency calls through 112 prefix (C or NSP),
- Numbering scheme used (C or NSP).

Proposal 4 : Splitting of the 1610-1625,5 Mhz band

ERC could decide on the splitting of the 1610-1625,5 Mhz band between CDMA and TDMA transmission technologies. Its decision should take into account the FCC proposal on division of the band.

Proposal 5 : Criteria for a selection process

- 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,

Further studies are necessary for defining the selection procedure.

Proposal 6: Terminal equipment authorisation

ECTRA and ERC, according to the EU directives, should promote the harmonisation of type approval for S-PCS terminal equipment and should also conclude that individual licences are not required for type-approved S-PCS terminal equipment in CEPT countries.

Proposal 7: Co-ordination of national authorisation for earth station and services.

[27] see paragraph $_i$) in section 3.2.1.

ECTRA and ERC should decide on which procedures to adopt for co-ordinating national authorisations for the installation of earth station and the provision of telecommunication services. Such a decision may include the establishment of a OSS procedure for both issues or for services only, or it may require harmonisation of elements of national licensing regimes.

Annex 10
April 1996

Lawful interception

The interception of telecommunications is regulated at the international level by article 8 of the Convention for the Protection of Human Rights and Fundamental Freedom of 1950. Under this law, States have national legislation specifying the conditions under which interception is allowed.

S-PCS global systems enabling information to be intercepted at a few points and located in countries where earth stations have been implemented, impede governments from exercising their power to intercept telecommunications transmission.

Within the European Union the problems of interception are being dealt with as follows. “Pillar three” of the European Union is Justice and Home Affairs with a council decision of ministers. Below this is the Committee of Permanent Representatives (COREPER) and below this is the K.4 Committee. Reporting to K.4 are three Steering Groups (I-Immigration and Asylum, II-Safety and Police and III-Juridical cooperation). The Police Cooperation Working group (PCWG) on interception reports to steering group II. Representatives of all EU countries usually attend this meeting.

An expert Sub-Group exists within the PCWG which deals specifically with satellites and this group is now starting discussions on the legal aspects of S-PCS with representatives of Steering Group III. Members of this group are also charged with informing standards bodies, regulators, manufacturers, network operators and service providers of legal requirements on S-PCS.

In 1990, European Ministers responsible for Justice and national security reached an agreement called "the TREVI Agreement" stating in particular that an international approach had to be favoured and that an expert group would study legal interception issues in the near future. On January 1995, a Council resolution on the lawful interception of telecommunications was adopted by the European Council.

The group of experts mentioned above will propose common European solutions which will allow the implementation of the requirements of the resolution.

The following preliminary principles have been carried out:

- National authorities should be able to intercept any satellite call generated from their own territory,
- The interception mechanism should be constructed in a country by the designated representatives of the operator in the country concerned,
- The intercepted call should be routed to a designated point in the country involved.

As far as the international stage is concerned, the European Group has joined with the USA, Australia and Canada to form a group called ILETS (International Law Enforcement Telecommunication Seminar) which meets annually and generally reinforces the work done by PCWG.
ILETS has a standing technical Committee which includes members of the PCWG expert sub-group and examines the problems posed by new technologies. Members of the standing

technical committee are presently involved in discussions with potential satellite operators about requirements for lawful interception and are also assisting in the production of interception schemes.

The above information clearly shows that in the Union, National Authorities in charge of interception have established a European framework in order to carry out requirements addressed to S-PCS operators. This framework includes co-operation with other regions like the US, Japan and Australia. The framework also includes bilateral discusions with potential operators involved..

Annex 11
Dec 97

Satellite Licensing Framework

1. Table establishing links between entities, the service offered by them and the authorisation regime applicable to the entities in question.

Entities involved	Services	Authorisation regime
Space Segment Operator (SSO)	Space segment provision	National notification to ITU (orbit and co-ordination) National legislation on Space issues
Satellite Network Operator (SNO) (which includes gateway operator)	Satellite Network First group of networks: -VSAT -SNG -MSS	Harmonised licensing conditions and procedures to be proposed by ETO to ECTRA and the EC
Service Provider (SP)	Telecommunications services (Services included: VAS, Voice-Telephony, Data, Reselling of transmission facilities and services)	The same licensing regimes must apply to services provided by SN and by other networks. (ETO has already proposed such harmonisation for a first group of services.)
Subscriber	Service access All services must be accessed by relevant terminal equipment connected at the termination point of the network (fixed or mobile).	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. Table establishing the correspondence between entities in the three telecommunications sectors: satellite, mobile and fixed network.

It should be noted that an entity of one sector does not necessarily correspond in all aspects to an entity of the two other sectors.

It should also be noted that a single entity can handle activities of several entities mentioned in the table below.

<table>
<tr><th>Entities involved in Satellite sector</th><th>Entities involved in Mobile sector</th><th>Entities involved in fixed network sector</th></tr>
<tr><td>Space Segment Operator (SSO)</td><td>Infrastructure Provider (including infrastructure reseller)</td><td>“Carrier’s carrier” (including infrastructure reseller)</td></tr>
<tr><td>Satellite Network Operator (SNO) (which includes gateway operator)</td><td>Mobile Operator</td><td>Fixed Network Operator</td></tr>
<tr><td></td><td colspan="2">Common part:
Service Provider</td></tr>
<tr><td></td><td colspan="2">Subscriber</td></tr>
</table>

3. Table giving definitions of entities involved in the satellite sector.

Entities involved	Definitions	Comments
Space Segment Operator (SSO)	The SSO is the entity which is responsible for the establishment and operation of one or more space stations (and possibly for providing space segments).	
Satellite Network Operator (SNO) (which includes gateway operator)	SNOs are entities which are partly or fully responsible, within a certain area, for the de jure or de facto control of transmission lines provided with one or more earth stations which interconnect by means of one or more satellites. The configuration in question provides network facilities which consist, at the very least, in the establishment of radiocommunications: i) between space segment and fixed earth stations which provide the link to the terrestrial public network (feeder link), ii) between space segment and end user earth stations which may be mobile or fixed (service links).	Definition based on the Satellite network service definition provided by the Commission directive 94/46/EC of 13 October 1994.
Service Provider (SP)	SP is 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.	This category appears in the fixed and mobile sectors.
Subscriber	The subscriber is a person, a company or a group of people and companies located at a termination point of a network, who/which has/have subscribed to the services provided by an SP.	The term user is also used instead of subscriber. User has however a broader meaning, and may not have obligatorily subscri-bed to a service.

4. Table giving definitions of the services in the satellite sector.

Services	Definitions
Satellite Network (SN)	SN is 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 perform the link to the terrestrial public network (feeder link), ii) between space segment and end user earth stations which may be mobile or fixed (service links). One or more fixed earth stations may have functions which are to control the system and/or to interconnect with other networks.
Satellite Network First group of network: -VSAT -SNG -MSS	A VSAT-network is a network using satellite transmission capacity, controlled by a "hub station", using earth stations of a small diameter (less than about 3.8 meters), between fixed locations of a permanent nature. (Frequency bands for VSAT is the 14.00 to 14.25 Ghz band and further capacity could be obtained from the band 14.25 to 14.50 Ghz.) *** "Temporary and occasional transmission with short notice of television or sound for broadcasting purposes, using highly portable or transportable uplink earth stations, operating normally in specific frequency bands". *** MSS are networks providing transmission facilities by means of radio waves between mobile earth stations (terminals). These networks consist, as a minimum, in the establishment of radiocommunications between terminals and other satellite earth stations and space segment. (Frequency bands for MSS are the 1.5/1.6 Ghz bands and 1.6/2.4 Ghz for non Geos systems)

Services	Definitions
Telecommunica-tions services	♦ Bearer Data Services ♦ Value Added Services ♦ Premium Rate Services ♦ Services Not Provided to the Public ♦ Voice Telephony ♦ Reselling of transmission facilities ♦ Reselling of Telecommunications Services These definitions can be found either in ETO reports or EC directives. ETO definitions: BDS, PRS, SNPP. EC definitions: VT Reselling is not defined yet
Other services which can be accessed by the terminal equipment connected at the termination point of the network (fixed or mobile)	These other services are e.g.: ♦ Call-back, ♦ Fax services, ♦ Enquiry and Directory services, ♦ Emergency services, ♦ Messaging services, ♦ Calling Line Identification (CLI), ♦ Call rewarding, ♦ Audio/Video-conference services, ♦ Data-bases and ♦ Internet services.

Annex 12
Dec 97

Satellite Fee calculations

First example:
- bi-directional transmission
- transmission capacity equal to 64 kbit/s
- bandwidth between 200khz and 1MHz
- 10 earth transmitting stations including the hub station located in the country in question
- 1 data service
- 1 satellite
- with connection to the PSTN
- no co-ordination is needed

Second example:
all characteristics are the same as in the first example, except for the following:
- receive only earth stations
- no connection to the PSTN

Third example:
all characteristics are the same as in the first example, except for the following:
- no connection to the PSTN
- with frequency co-ordination

Fourth example:
- bi-directional transmission from the main station located in Germany
- transmission capacity equal to 64 kbit/s
- bandwidth between 200khz and 1MHz
- 16 earth transmitting stations located in the 8 countries (2 per country)
- 1 data service
- 1 satellite
- no connection to the PSTN
- no co-ordination is needed

Fifth example:
- bi-directional transmission
- transmission capacity equal to 64 kbit/s
- bandwidth between 200khz and 1MHz
- 100 earth transmitting stations
- 1 data service
- 1 satellite
- with connection to the PSTN
- no co-ordination is needed

Information on fee calculation in Austria, which has not been used in the above-mentioned examples

country	fee information	calculation
Austria	-annual fees per transmitting unit From 9000 ECUs for 1000 Watt To 200 ECUs for 1 watt -no fees for receive-only-stations -1,153.8 ECUs for international co-ordination paid once	Not used in any of the above-mentioned examples due to the fact that calculation parameters differ too much from those used in other countries.

First example table

country	fee information	calculation
Belgium	adm. fee per station/dossier: 4,130 BF/106.8 ECUs yearly fees per station: 14,880 BF/384.8 ECUs	1st year: 491.6*10=**4,916 ECUS** subsequent years: 384.8*10=**3,848** ECUs
Denmark	administrative fee: 900 DKK/123.9 ECUs yearly fees per station: 1200DKK/165.2ECUs	1st year: 289.1*10+= **2,891 ECUs** subsequent years: 165.2*10+= **1,652 ECUs**
Finland	licence fee (no international co-ordination): 360FIM/68.1ECUs	annual fees: 68.1*10=**681 ECUs**
France	initial fee (> 5 stations): 40,000FFr/6,224 ECUs annual fee 10,000FFr+500FFr per station: 1,556 ECUs+77,8 ECUS/st	1st year: 6,224+1,556= **7,780 ECUs** subsequent years: 1,556+77.8*10=**2,334 ECUs**
Germany[28]	initial fee: 15,000DM+1000DM/st 7,995ECUs+533ECUs/st annual fee: 100DM/st / 53.3ECUs/st	1st year: 7995+533*10=**13,325 ECUs** subsequent years: 53.3*10=**533 ECUs**
Italy	initial fees: 1 M lira/500 ECUs per service and per network and 4 M lira/2,000 ECUs for earth stations annual fees: 10 M lira/5,000 ECUs for use of bandwidth and 200,000/100 ECUs per station	1st year: 500+500+2,000+5,000+ (100x10)= **9,000 ECUs** subsequent years: 5,000+ (100x10)=**6,000 ECUs**
The Netherlands	initial fee: 1,400 NLG/665 ECUs annual fees/station 1,000 NLG/475 ECUs	1st year: 665+475*10=**5,415 ECUs** subsequent years: 475*10=**4,750 ECUs**
Portugal	initial fee: 2,875 ECUs for services 170 per station annual fees: 10,000 ECUs for services 2x125 ECUs per station for the use of bandwidth necessary to transmit a 64 kbit/s signal	1st year: 2,875+170*10+12,500=17**,075** ECUs Subsequent years: 10,000+2(10x125)=**12,500 ECUs**
United Kingdom	connection with PSTN, initial fee: 6000 L/7,326 ECUs annual fee: 1000 L/1,221 ECUs hub station, initial fee: 5000L/6,105 ECUs annual fees (less than 20 terminals): 1 000 L/1,221 ECUs	1st year: 7,326+6,105=**13,341 ECUs** subsequent years: 1,221+1,221=**2,442 ECUs**

[28] Calculation based on the previous legislation which is not valid any more.

Second example table

country	fee information	calculation
Belgium	adm. fee per station/dossier: 4,130 BF/106.8 ECUs yearly fees per station: bi-direct: 14,880 BF/384.8 ECUs receive only: 1,860 BF/43.5 ECUs	1st year: 491.6*10=**4,916 ECUS** subsequent years: 384.8+43.5*9=**776.3 ECUs**
Denmark	administrative fee: 900 DKK/123.9 ECUs yearly fees per station: 1200DKK/165.2ECUs	1st year: 289.1*10+=**2,891 ECUs** subsequent years: 165.2*10+=**1,652 ECUs**
Finland	no service fees	**0 ECUs**
France	initial fee (> 5 stations): 40,000FFr/6,224 ECUs annual fee 10,000FFr+500FFr per station: 1,556 ECUs+77,8 ECUS/st	1st year: 6,224+1,556= **7,780 ECUs** subsequent years: 1,556+77.8*10=**2,334 ECUs**
Germany	initial fee: 15,000DM 7,995ECUs	1st year: **7995 ECUs**
Italy	initial fees: 1 M lira/500 ECUs per service and per network and 3 M lira/1,500 ECUs for earth stations annual fees: 10 M lira/5,000 ECUs for use of bandwidth and 200,000/100 ECUs per station	1st year: 500+500+1,500+5,000+ (100x10)= **8,500 ECUs** subsequent years: 5,000+ (100x10)=**6,000 ECUs**
Portugal	initial fee: 2,875 for services 170 ECUs for the main station, 0 ECU for receive only station if no protection 170 ECUs if protection Annual fees: 2x125 Ecus for bandwith of the main station	1st year: 2,875+170x1+10,250=**13,295 ECUS** Subsequent years: 10,000+2x125= **10,250 ECUs**
The Netherlands	initial fee: 1,400 NLG/665 ECUs annual fees/station 1,000 NLG/475 ECUs	1st year: 665+475*10=**5,415 ECUs** subsequent years: 475*10=**4,750 ECUs**
United Kingdom	hub station, initial fee: 5000L/6,105 ECUs annual fees (less than 20 terminals): 1 000 L/1,221 ECUs	1st year: **6,105 ECUs** subsequent years: **1,221 ECUs**

Third example table

country	fee information	calculation
Belgium	adm. fee per station/dossier: 4,130 BF/106.8 ECUs yearly fees per station: 14,880 BF/384.8 ECUs	1st year: 491.6*10=**4,916 ECUS** subsequent years: 384.8*10=**3,848** ECUs
Denmark	administrative fee: 900 DKK/123.9 ECUs yearly fees per station: 1200DKK/165.2ECUs	1st year: 289.1*10+=**2,891 ECUs** subsequent years: 165.2*10+=**1,652 ECUs**
Finland	licence fee (with international co-ordination): 880FIM/166.5ECUs co-ordination initial fee: 500FIM/94.6 ECUs per hour with 10h max	1st year: from 166.5+94.6=**261.1 ECUs** to 166.5+94.6*10=**1,112.5 ECUs** annual fees: **166.5 ECUs**
France	initial fee (> 5 stations): 40,000FFr/6,224 ECUs annual fee 10,000FFr+500FFr per station: 1,556 ECUs+77,8 ECUS/st	1st year: 6,224+1,556= **7,780 ECUs** subsequent years: 1,556+77.8*10=**2,334 ECUs**
Germany	initial fee: 15,000DM 7,995ECUs co-ordination fee: 1000 DM/ 533 ECUs	1st year: 7995+533=**8.528 ECUs**
Italy	initial fees: 1 M lira/500 ECUs per service and per network and 3 M lira/2,000 ECUs for earth stations and 4 M lira/2,000 ECUs for co-ordination annual fees: 10 M lira/5,000 ECUs for use of bandwidth and 200,000/100 ECUs per station	1st year: 500+500+1,500+5,000+2,000+ (100x10)= **10,500 ECUs** subsequent years: 5,000+ (100x10)=**6,000 ECUs**
Portugal	initial fee: 2,875 ECUs for services 500 ECUs per station annual fees: 10,000 ECUs for services 2x1,250 ECUs for the use of bandwidth between 100KHz and 1MHz	1st year: 2,875+500*10+12,500= **20,375 ECUs** Subsequent years: 10,000+2(1,250)=**12,500 ECUs**
The Netherlands	initial fee: 1,400 NLG/665 ECUs annual fees/station 1,000 NLG/475 ECUs co-ordination fees: 2,000 NLG/950 ECUs	1st year: 950+665+475*10=**6,365 ECUs** subsequent years: 475*10=**4,750 ECUs**
United Kingdom	hub station, initial fee: 5000L/6,105 ECUs annual fees (less than 20 terminals): 1 000 L/1,221 ECUs	1st year: **6,105 ECUs** subsequent years: **1,221 ECUs**

Fourth example table

country	fee information	calculation
Belgium	adm. fee per station/dossier: 4,130 BF/106.8 ECUs yearly fees per station: 14,880 BF/384.8 ECUs	1st year: 491.6*2=**983.2 ECUS** subsequent years: 384.8*10=**769.6** ECUs
Denmark	administrative fee: 900 DKK/123.9 ECUs yearly fees per station: 1200DKK/165.2ECUs	1st year: 289.1*2=**578.2 ECUs** subsequent years: 165.2*2=**330.4 ECUs**
Finland	no service fees	**0 ECUs**
France	initial fee (< 5 stations): 25,000FFr/3,890 ECUs annual fee 3,000FFr+500FFr per station: 466.8 ECUs+77,8 ECUS/st	1st year: 3,890+466.8+77.8*2= **4,502.4 ECUs** subsequent years: 466.8+77.8*2=**612.4 ECUs**
Germany	initial fee: 15,000DM+1000DM/st 7,995ECUs+533ECUs/st annual fee: 100DM/st / 53.3ECUs/st	1st year: 7995+533*3=**9,594 ECUs** subsequent years: 53.3*3=**159.9 ECUs**
Italy	initial fees: 1 M lira/500 ECUs per service and per network annual fees: 2 M lira/1,000 ECUs for use of bandwidth and 200,000/100 ECUs per station	1st year: 500+500+1,000+ (100x2)= **2,200 ECUs** subsequent years: 1,000+ (100x2)=**1,200 ECUs**
Portugal	initial fee: 250 ECUs for services 170 ECUs per station Annual fees: 2x1,250 ECUs for the use of bandwidth between 100KHz and 1MHz	1st year: 250+170*2=**590** ECUs Subsequent years: 2x125=**500 ECUs**
The Netherlands	initial fee: 1,400 NLG/665 ECUs annual fees/station 1,000 NLG/475 ECUs	1st year: 665+475*2=**1,615 ECUs** subsequent years: 475*2=**950 ECUs**
United Kingdom	VSAT terminal fees (1-20) annual fee: 1000 L/1,221 ECUs	annual fees: 1,221=**1,221 ECUs**
TOTAL		**First year: 20,162.8 ECUs** **subsequent years:** **5,743.3 ECUs**

Fifth example table

country	fee information	calculation
Belgium	adm. fee per station/dossier: 4,130 BF/106.8 ECUs yearly fees per station: 14,880 BF/384.8 ECUs	1st year: 491.6*100=**49,160 ECUS** subsequent years: 384.8*100=**38,480 ECUs**
Denmark	administrative fee: 900 DKK/123.9 ECUs yearly fees per station: 1200DKK/165.2ECUs	1st year: 289.1*100= **28,910 ECUs** subsequent years: 165.2*100= **16,520 ECUs**
Finland	licence fee (no international co-ordination): 360FIM/68.1ECUs	annual fees: 68.1*100=**6,810 ECUs**
France	initial fee (> 5 stations): 40,000FFr/6,224 ECUs annual fee 10,000FFr+500FFr per station: 1,556 ECUs+77,8 ECUS/st	1st year: 6,224+1,556= **7,780 ECUs** subsequent years: 1,556+77.8*100=**9,336 ECUs**
Germany	initial fee: 15,000DM+1000DM/st 7,995ECUs+533ECUs/st annual fee: 100DM/st / 53.3ECUs/st	1st year: 7995+533*100=**61,295 ECU[29]s** subsequent years: 53.3*100=**5,330 ECUs**
Italy	initial fees: 1 M lira/500 ECUs per service and per network and 10 M lira/5,000 ECUs for earth stations Annual fees: 10 M lira/5,000 ECUs for use of bandwidth and 200,000/100 ECUs per station	1st year: 500+500+5,000+5,000+ (100x100)= **21,000 ECUs** subsequent years: 5,000+(100x100)=**15,000 ECUs**
Portugal	initial fee: 2,875 ECUs for services 170 ECUs per station annual fees: 10,000 ECUs for services 12,500 ECUs for the use of bandwidth	1st year 2,875+170*100+35,000= **54,875 ECUs** Subsequent years: 10,000+2x12,500=**35,000 ECUs**
The Netherlands	initial fee: 1,400 NLG/665 ECUs annual fees/station 1,000 NLG/475 ECUs	1st year: 665+475*100=**48,165 ECUs** subsequent years: 475*100=**47,500 ECUs**
United Kingdom	connection with PSTN, initial fee: 6000 L/7,326 ECUs annual fee: 1000 L/1,221 ECUs hub station, initial fee: 5000L/6,105 ECUs annual fees (less than or equal to 100 terminals): 3 000 L/3,663 ECUs	1st year: 7,326+6,105=**13,341 ECUs** subsequent years: 1,221+3,663=**4,884 ECUs**

[29] According to the new legislation the maximum amount of fees for licences class 3 is 16,000 ECUs

Annex 13
Dec 97

Milestone Review Procedure

In early July ERC and ECTRA adopted two decisions on the harmonised use of spectrum and on harmonisation of authorisation conditions and co-ordination of procedures respectively for Satellite Personal Communications Services (S-PCS operating within the bands 1610-1625.5 MHz, 2483.5-2500 MHz, 1980-2110 MHz and 2170-2200 MHz).

These two decisions jointly establish a Milestones Review Procedure (MRP) which includes the S-PCS authorisation scheme, a list of conditions that may be attached to authorisations and the definition of the relevant milestones, and which establishes a Committee called the "Milestone Review Committee" (MRC). The first meeting of the MRC will be orgainsed in early October.

1- S-PCS authorisation scheme

The applicant should submit its application to an NRA. This application should include two parts: the first dealing with the milestones and the second with specific national requirements.

The NRA involved will examine the application form in accordance with national regulations and the requirements of CEPT decisions. The NRA will forward the relevant elements of the application or the explanation of its rejection to the MRC.

The MRC will re-examine the compliance of the applications with the requirements of CEPT decisions. If it has been successfully done, the MRC will examine the compliance with the milestones and make recommendations to all NRAs involved.

It should be noted that individual licences should be granted within a period of 4 months in accordance with the EU licensing directive.

2- Conditions that may be attached to authorisation

The list is the copy of the list annexed to the EU licensing directive

It should be noted that ETO has proposed a more restrictive list (see chapter 4 and 5 of the ETO report).

3- Milestones

a) Submission of ITU Advance Publication and Co-ordination Documents.
b) Document proving evidence of binding agreement for satellite manufacturing, signed by both parties.
c) Declaration signed by the satellite manufacturer indicating the date of the start of satellite manufacturing.
d) Document proving evidence of binding agreement for the launch of a minimum number of satellites (dates, indemnity), signed by both parties.
e) Document proving evidence of binding agreement for the construction and installation of gateway earth stations, signed by both parties.
f) Documents proving evidence of the successful launch of satellites and their in-orbit deployment in compliance with milestones.
g) Documents relating to the successful frequency co-ordination of the system.
h) Notification by 1 January 2001 of the provision of the services and compliance with milestones.

4- Milestones Review Committee

The MRC will:
- monitor compliance with the milestones -which may be modified,
- co-ordinate procedures within the CEPT and
- make recommendations to ERC and ECTRA respectively on frequency usage and management, and application procedures.

Annex 14
Dec 97

Portugal's comments on the report

Part A

The Portuguese Administration expresses its disagreement regarding the fact that the conclusions of the report do not consider the possibility of qualification conditions related to:

- legally registered representatives
- accounting rules
- absence of debts to the State

It stresses the fact that the first condition derives from internal commercial law, whose assessment in the light of Community Law is not within ETO's field of competency.

The other two conditions are closely connected to the evaluation of the financial capability of the applicants and there no reason to impede them from being considered in the licensing regime. They are also connected to non-telecommunications specific issues which should be taken into account.

Part B

The Potuguese Administration states that registration of receive-only earth stations may be required for purposes of on-site protection (when required) radio-spectrum monitoring or statistical elements collection. It does not agree therefore that in all cases a general authorisation is sufficient.

Annex 15
Oct 97

Comments from the industry

On 16 October 1997, the report was presented to representatives of interested industry players in Borchette center, Brussels, who commented on the following issues:

- Differences between space segment operators and satellite network operators,
- Consequences of VAT differences among European countries,
- Possible auctioning of frequencies for satellite systems,
- Absence of conclusions on the fact that fees should reflect administrative costs,
- Divergence between ETO proposals and existing regulations in CEPT countries,
- Interconnection rights and obligations,
- Reason for not proposing general authorisation for satellite networks,
- Licensing conditions of mobile earth stations,
- SNG type approval.

A general comment was made on the possibility of sending copies of the report to industry representatives, in order to obtain feedback. The ETO presentation given to the industry is clearly a snapshot of the report, which is far more detailed. ETO illustrated its presentation with country cases studies. However, the report contains information on 18 countries. Representatives commented that it has therefore been very difficult to react to information provided in ETO's presentation, which was limited by the short time available.

ETO noted that the EC has very clearly said that the report may be circulated. The fact-finding part of this report is undoubtly accurate and of use to industry representatives. However, concerning ETO´s proposals, the EC has no objections to their circulation by ETO, provided they are clearly marked to be proposals which are being submitted merely to attract comments by players.

If this is the case, ETO does not have a problem in circulating copies of the report to industry representatives. However it would be inappropriate - also for ECTRA – to circulate the present copy as a final draft report. As such, it is important to separate the cover pages and attach a covering note stating that the present copies are being submitted only to attract the opinion of the interested players.

a) Differences between space segment operators and satellite network operators

Operators underlined that the definition of SNO proposed by ETO does not make clear the entities which may be classified into the category of SNO and for which a licence will be required.

> ETO replied that it has tried to differentiate between the company providing space segment capacity, namely the company in charge of the satellite or the constellation of satellites, and the entity in charge of operating the satellite network and managing earth stations, control stations and gateways with fixed networks. Sometimes these may be the same company but it is necessary to differentiate between the two different functions referred to in the definition of SNO and SSO respectively.
>
> We may illustrate this with the example of Iridium. Iridium Ltd. is a global company that designs projects, launches satellites and contracts with a number of national or regional entities. At a secondary level, regional entities like "o-tel-o" or Telespazio are in charge of the development of earth stations, type approval and free circulation of terminal equipment, services and commercial activities. It appears that "o-tel-o" and Telespazio are the satellite network operators, a licence has therefore to be obtained by these entities in Europe. None of the NRAs intend to grant any licence to the global firm (Iridium Ltd) which has launched the satellite and will manage this global constellation of satellites, even though this global entity is in charge of some operating functions as well.
>
> The same is also valid for geostationary systems such as Eutelsat or Hispasat providing space capacity to operators providing services to end-users. This distinction is not based only on licensing aspects and made for regulators.
>
> Concerning the launch of a satellite and the provision of space segment, only one administration is involved in order to organise the co-ordination of frequencies and orbits in ITU. As only one administration is involved no harmonisation is needed.

This separation is somewhat artificial. One company can have two functions, both space segment operator and satellite network operator. For licensing, ETO only considers the function of the satellite network operator. And it is the same situation when ETO considers satellite network operator and service provider. Sometimes the operator is also the service provider.

Section 2.1. of the report has been completed accordingly.

b) Consequences of VAT differences among European countries

VAT was also considered by one of the participants to the workshop to obstruct access to some markets.

This issue is not included in the scope of the study. It is a general question, not specific to telecommunication sector. However it is interesting to know that differences in VAT percentages may have a significant effect on access to markets.

c) Possible auctioning of frequencies for satellite systems

One operator said that "it has not been specifically mentioned in the ETO or the RR study how fees for frequencies might derive from the possible use of auctions. At this point in time our understanding is that no EU or indeed CEPT administration is seriously considering the use of auction for satellite access. Certainly I think that the satellite industry is probably united in its view that auction should not be used. I think it would be useful for perhaps some reflection of that sentiment to be considered by ETO in your report."

The ETO's response was that neither the European Commission nor ECTRA had asked ETO to study this issue. Concerning the situation in CEPT countries, little information exists on auction. Auctioning of frequencies has been done for mobile systems. However, in the field of satellite, the only initiative known at the moment in Europe has been initiated by the United Kingdom for the auctioning of UMTS frequencies. A document has been sent for consultation and we do not know what will be the decision of the UK government resulting from this consultation. Some other countries are also considering auctions but at the moment no decision has been adopted in any of the CEPT countries concerning satellites. The opinion of the European Commission on this aspect is also well-known: the EC is strongly opposed to this procedure.
ETO is of the opinion that if auction is organised, it will be more difficult to co-ordinate such a procedure than some other procedures like "beauty contest".

However, this needs to be studied before any firm conclusion can be drawn on the issue. Since it has not been studied, it is difficult to give comments.

d) Absence of conclusions on the fact that fees should reflect administrative costs

The EC had a question about ETO's presentation because it is not sure that the conclusions are fully understandable concerning fees. Basically, the Licensing Directive stipulates that fees should reflect the administrative costs of frequency management or enforcing control of usage of spectrum, etc. It is not clear whether the ETO study examines what is happening in the Member States and reveals the extent to which fees really cover the costs.

The study conducted by ETO does not allow any firm conclusion on whether the fees reflect the costs or not. The only thing that can be seen is that if the fees do reflect the costs, the costs are very different from country to country.

In order to check the correspondence between fees and costs, we need to examine the size and nature of the staff of each NRA in charge of the issues in question. This has not been done and it needs a survey of the situation in national administrations. This is the reason why it is impossible to make any firm conclusion on this point at the moment. ETO merely considered the different parameters, established by the Licensing Directive and it could be seen that these criteria have not been used in most CEPT countries for the establishment and calculation of fees.

The DTI representative thought that there is perhaps a need for more details on some of the breakpoints in the charges. ETO has talked about a network of up to 100 earth stations. The DTI representative noted, "I suspect that there is probably a natural breakpoint for some administrations in their charging schemes. However a significant level of details will enable operators to have easy access to the real cost of establishing a network. Such an information may be provided by ETO on its web-site."

ETO responded that this information will be provided on the ETO web-site on VSAT/SNG licensing conditions which will be progressively expanded to cover all satellite networks regarding the full liberalisation of this sector. Concerning the breakpoints in charges adopted in some countries, it is true that the calculation depends on where we put the limit. But the problem exists in only two countries where ETO found such a fee structure. ETO's opinion is that administrative costs do not depend on the number of earth stations of a single network in one country. It is this kind of thing that is illustrated by the study.

These comments have been included in section 3.5, the concluding section of chapter three on fee calculation.

e) Divergence between ETO proposals and existing regulations in CEPT countries

Referring to ETO's proposals on the licensing procedures for various elements of the satellite network, it has been indicated that the proposals are quite similar to the licensing regimes already in force in some European countries. ETO quotes Finland, France, Sweden and the UK. The question is: how divergent are the ETO proposals from the other regimes of the countries that you have considered? It is important for operators to know this, in terms of the likelihood of these proposals being accepted.

This analysis has not been done by ETO. However, based on the information on national regulatory regimes, conclusions on this point will be included in the final report.

f) Interconnection rights and obligations

When considering the list of licensing conditions, a question was asked: where is interconnection incorporated? This question arises because licensing duties are normally linked to the operation of a network. This means that once an entity has acquired a licence, it is also responsible for a number of duties. One typical duty is, for example, interconnection. The concerned entity may be subject to requests for interconnection, depending on its position of being dominant or not in the market.
This is one of the most important factors together with legal interception and those other issues ETO has listed. The question posed to ETO was: how to find the interconnection issue on the list?

In ETO's opinion, interconnection is not a licensing condition of satellite networks. It is a right attached to a licence to interconnect with any public network under a contract between the two parties involved. Normally no conditions are imposed on satellite networks concerning interconnection. ETO's opinion is that no existing satellite network is a significant market power in the context of the criteria established by the European Union's policy.

However, in Germany, a licensee for S-PCS, even if no significant market power has been proved, is obliged to give a proposal on request for interconnection. This is also a typical licence duty which has something to do with interconnection and which is also linked to the issueing of an S-PCS licence. This demonstrates that it is anyway an important issue, because it may be linked with specific interconnection duties for the licensee, whatever they are.

It may be possible that some countries impose specific conditions on interconnection, but ETO does not see any reason to include this in its proposal on licensing conditions for satellite networks. ETO mentioned that it is conducting a separate study concerning operators with significant market power and this issue is considered as a separate issue independent from the category of networks or services. Interconnection may also be considered in relationship with competition rules.

Section 2.4 on licensing conditions has been completed on this issue, which is not included in the list of licensing conditions for satellite networks.

g) Reason for not proposing general authorisation for satellite networks

ETO mentioned the recently adopted Licensing Directive in its presentation. One key principle of that directive is that NRAs should, wherever possible, grant general authorisations rather than individual licences. The directive limits quite significantly the circumstances in which individual licences can be granted. In this context, some surprise was expressed at the fact that the ETO proposals for licensing still put such emphasis on individual licensing. It was suggested to ETO that this part of ETO's proposals may be reconsidered with a view to being rather more deregulatory.

ETO proposes individual licences for satellite networks due to the fact that satellite networks use frequencies. However, in some cases, e.g. where it is

possible to use frequencies without any authorisation, a registration/notification or a general authorisation may be proposed instead. This situation may be only theoretical and may not really exist.

ETO underlined that general authorisation with a notification has been proposed for additional earth stations of an authorised satellite network.

h) Licensing conditions of mobile earth stations

Taking into account the proposal that concerns earth station conditions and also other statements on land mobile earth stations, the impression was created that ETO refers essentially to gateway earth stations. However, the proposal may be understood as being more general in its application. This should be clarified in the ETO report so that confusion can be avoided. The land mobile earth stations – as it is said later in the report – should be licensed under a general authorisation only.

The ETO noted that the above interpretation of the concerned proposal by the speaker is correct. The text on earth station conditions is not applicable to mobile earth stations but only to the "hubs".

i) SNG type approval

Clarification was requested concerning the status of SNG, because during the presentation, it had been mentioned that SNG stations are exempted from type approval and requirements regarding the integrity of the system.

The presentation did not refer to type approval, but to co-ordination procedures for which a report was issued by the ERC and this report says in the title that it refers to co-ordination between SNG and the fixed service. It mentions only SNG. But the procedures are applicable to VSAT as well.

j) Written comments received after the workshop on the definition of satellite network

The definition of satellite networks proposed in this version of the report takes into account the comments received.

k) Written comments received after the workshop on co-ordination and harmonisation of licensing regime

The establishment of co-ordination procedures within CEPT and harmonisation of national licensing conditions and procedures have been requested by a number of operators.

Annex 16
June 1996

Elements of the Sirius Report

INTRODUCTION

In this report, Sirius analysed the licensing regime of satellite telecommunications services in CEPT countries, and the existing harmonized procedure between four of them: France, Germany, The Netherlands and the UK. This procedure, based on a Memorandum of Understanding which establishes a one stop shopping procedure for simultaneous licensing in these countries, can be considered as a first step on the way to further harmonization. This experience, as well as the requirements of service providers operating VSAT licences in CEPT countries, will lead us to propose solutions for this harmonization and define the possible role of ETO in this framework.

OVERVIEW OF THE STUDY:

EXECUTIVE SUMMARY

The objective of this study was to analyse the licensing regime of satellite telecommunications services in CEPT countries, and the existing harmonized procedure between four of them: France, Germany, The Netherlands and the UK. This procedure, based on a Memorandum of Understanding which establishes a one stop shopping procedure for simultaneous licensing in these countries, can be considered as a first step on the way to further harmonization. This experience, as well as the requirements of service providers operating VSAT licences in CEPT countries, lead us to propose solutions for this harmonization and define the possible role of ETO in this framework.

The findings of our investigation on national licensing regimes for VSAT and SNG services in CEPT countries are based on a questionnaire sent to national regulators, followed with telephone conversations. In spite of wide differences in the VSAT/SNG licensing regimes of the various CEPT countries, a certain number of common points can be traced that stem mostly from the EU-driven deregulation of national telecommunication markets. As a result, certain trends encountered in most countries surveyed can be considered as drawing a common basis among national regulations:

- most often, all services are allowed on VSAT networks except public switched voice telephony which remains the monopoly of the national telecom operator

- licensing is often divided between a licence for service offering and radio licences for each earth station (sometimes transmitting earth stations only), the latter being designed to ensure appropriate frequency coordination in-country

- site clearance is required in most countries, thus protecting sensitive areas such as airports from radio interferences

- fee structures often stick to the licensing procedure, with a one-off administrative fee, plus yearly (or regular) radio allocation fees.

These observations could be the basis of a harmonization among European countries' licensing procedures, which could go further than the existing MOU between France, Germany, the Netherlands and the UK.

In the present MOU's framework, the coordinating role, possibly incumbing to any of the national regulators, requires that each of them be aware of all other three countries' regulations and procedures so as to best advise the operator in targeting his request and in providing the right information. But this is not always the case and is only possible, at least in theory, when only a limited number of countries are concerned. In the framework of a wider agreement, eg covering the EU, no national regulator can be expected to be familiar with the licensing procedures of the other fourteen countries (and even more if the MOU were to be extended to other CEPT countries). Nor would all national administrations have the means to play efficiently such a coordination role.

As part of this study, we have also investigated mobile satellite services (except SPCS) as another field that could possibly require the development of harmonized licensing procedures. As a matter of fact, it seems clear to us that land mobile and aeronautical services do not present any scope for a one stop shopping procedure to be installed Europe-wide for service licensing. The limited number of operators in a market which is all but competitive, or the limited number of licences required (no service licences in the case of Inmarsat land mobile services), would make it completely irrelevant.

Finally, we conducted an assessment of service providers' licensing needs, based on the answers of 17 VSAT service providers located in Western, Eastern Europe or in the USA. 12 of these interviewees are among the top 21 VSAT operators on the continent, and those twelve only represent 66% of the total number of VSAT terminals installed in Europe as of February 1996 ("European VSAT Monitor" data). The representativity of the answers obtained is therefore satisfying. Their content allowed us to better define in which way the licensing procedures could be harmonized to better meet their needs.

Overall, it seems to us that there is a strong case for a a pan-European one-stop-shopping procedure, with one coordinator appointed by the CEPT. In this case, ETO seems widely expected to fill this role by the national regulators and would also be extremely wellcome by licence applicants. A very positive evolution would lie in a mutual recognition of licences, which most national regulators wish to see taking place. In this case, certain regulators (Germany, Netherlands, France) seem to agree on the shape this recognition could take: a Europe-wide licence authorizing an operator to provide services in all countries concerned (EU?) on the one hand, and national authorizations for the set-up of networks and the installation of head stations in each countries on the other hand. This two speed licensing process would leave countries responsible for national issues such as frequency harmonization. National regulators seem to agree that in these conditions licensing an operator to provide services Europe-wide is a competence which could be transferred to ETO, which could then act as a mailbox coordinating the national procedures of the second stage.

Service providers, as for them, are eager to see these procedures simplified. In particular, having to deal with one contact person only is widely percieved as a great advantage by those who benefited from the existing MOU as well as by those who didn't. The call for a single CEPT licence is also clear on their side but it must be clear that ETO's efficiency will depend on the amount of powers it will receive from the national regulators. These powers may not concern the decision of granting the licence itself but they must in any case concern the TIMING of the licensing process. This is essential in our opinion to make procedure a real improvement for applicants.

In any case, a solution which would consist for ETO to act as a simple mailbox, including for the service licence, would not be satisfactory since it would provide no additional service and since it would limit the contacts between licensees and regulators. It could rapidly appear as a simple waste of time for applicants, who would have to go through yet another administration.

This said, the question remains wether ETO would presently have the means to centralize the procedures in a large number of countries. This would require ETO to hire well trained staff, ideally with an experience at national regulators of all countries covered, who would be able to inform applicants, and advise them on their specific projects regarding the possibilities offered by national regulations.

In our opinion, due to the diversity of national regulations and the particular informations or licence modifications that operators may require, the only practicable solution is the following: ETO should encourage whenever appropriate a direct contact of licensees with their regulators in particular by providing a list of contact names and directing special enquiries to the right persons in national administrations. It is a sort of “subsidiarity” principle that should be applied here, on a day to day basis, whereby ETO would directly handle major issues sur as service licensing, and would efficiently direct operators to the national regulators for other issues (special information, licence modification, site clearance,...) that can be better dealt with on a national level.

Ideally, certain issues such as the information required by regulators and the fees charged for the licences could also be harmonized in the framework of this centralised procedure, bearing in mind that the total fee shoud remain in proportion with the investment made by operators and the return they may reasonably expect from it. A fee structure taking into account the number of stations, emitting or recieving, would be most appropriate. It could for example include a one-off fee charged by ETO for the CEPT service license, and yearly fees for national radio allocation licenses. Such an evolution, however, is only possible as far as fees and administrative hurdles do not reflect a political will to hamper the development of VSATs, or simply to make money on operators. In case they were harmonized, ETO could charge directly the fees required for both types of licences, and then pay them back to the countries concerned.

Finally, if a new pan-European procedure were to be launched, it would be essential to promote awareness of it among potential applicants, since the lack of information (even on existing simplified procedures such as the MOU, or on information sources as the ETO data base) remains one of the main handicaps faced by operators. We think the promotion of this new procedure should be articulated around the following elements:

- commitment of regulators to a time scale in the framework of the harmonized procedure,
- designation of one contact person, who would take ownership of the whole procedure,
- simplification of paper work, and possibly harmonization of the information required by each country (which is not the case in the present MOU between four countries)
- the information provided on operating conditions, either by ETO or directly by the competent contact persons at national regulators’.

CHAPTER III - THE CASE OF MOBILE SATELLITE TELECOM SERVICES, OTHER THAN SPCS

As part of this study, we have investigated mobile satellite services as another field that could possibly require the development of harmonized licensing procedures. SPCS, however, remain excluded from this survey, since they were treated separately in a different report. But a reference to them has sometimes seemed unavoidable, given their prominent weight in mobile satellite communications issues.

Mobile Satellite Services presently offered in Europe are articulated around two major international organizations, that provide the satellite infrastructure necessary for the service provision. They are Eutelsat, through its Euteltracs service, and Inmarsat through its aeronautical and land mobile services.

A) - EUTELTRACS

Euteltracs is a messaging and radio determination satellite service based on two Eutelsat satellites. One master satellite carries the message-exchange service and a second satellite provides the triangulation required for accurate position reporting. The satellites are positionned in geostationnary orbit (i.e. about 36,000 kms above the earth's surface) and are controlled and monitored from Eutelsat's headquarters in Paris. Their coverage extends not only over all of Europe, but also large areas of North Africa and the Middle East.

The nerve centre for the system's on-ground operations is the Euteltracs hub station in Paris. It is the pivotal link between the vehicles, the satellites and the end-users. The hub is connected in turn to a series of Service Provider Network Management Centres (SNMCs) controlled by the national and regional service providers. Messages from a fixed customer terminal (eg. a transporter's headquarters) to a vehicle (eg. a lorry belonging to this transporter) will be routed to the national service provider's SNMC, then to the Eutelsat hub station, and finally via satellite to the vehicle. Messages from the vehicle to a fixed end-user go the other way round.

This service was originally launched in Europe by Alcatel Qualcomm, which is now in charge of marketing Omnitracs equipment in Eastern and Western Europe, in the Middle-East and North Africa. The joint venture between telecom equipment Alcatel and electronics company Qualcomm sold the network management center to Eutelsat which has since managed its space and earth segments. The service is marketed under the Euteltracs name by national and regional offerers (e.g. in France, Telecom Systèmes Mobiles, a France Télécom subsidiary).

Eutelsat is in charge of obtaining the necessary licences in countries covered by the service. A total of three licences is required to operate a mobile satellite telecommunications service in most European countries.

1) - the first licence concerns the authorization to offer the services in each country covered. These licences are obtained by setting up a service provider in each country, which then applies for them. Euteltracs, whose service has been operational for four years now, has already created some twenty service providers.

It is a basic radiocommunications services licence which is needed. Depending on the countries, radiocommunications licences and VSAT licences may either be identical (as in the case of Germany) or separated (UK, France).

2) - the second licence needed to offer MSS services concerns equipment approval and radio frequency allocation.

Regarding equipment approval, the decision depends on the respect of norms and standards for land and maritime mobile communications designed to ensure the security of communications, the prevention of interferences and the safety of terminals' use.

Regarding frequency allocation, how easily this licence is obtained depends very much on the frequency used by the service provider's system. In the case of Euteltracs, it is generally very easy since the system is using the Ku band on a secondary allocation basis, alongside other mobile services.

3) - Finally, the third type of licence required is designed to ensure a free circulation of terminals (on board trucks or cars) among European countries.

This free circulation licence was until now defined by a "**Recommendation"** from the CEPT. Each member country remained free to apply it or not, on a case by case basis. Service providers applying for this licence had to send a simple CEPT form to national regulatory authorities who either returned it signed to the applicant thus allowing free circulation of its terminals on the country's territory, or simply refused to. Countries that do not belong to the CEPT could also accept to conform to this recommendation by authorising the circulation of terminals through the same procedure.

This system has been replaced this year by a "**Declaration**" from the CEPT, voted by member states and stating that all of them allow free circulation of terminals (responding to certain technical characteristics). However, this measure which was designed to make things easier for operators seems to have the reverse effect at least in the short run. In fact, in a large number of countries, this text is simply contrary to the national telecommunications law, and thus cannot apply until this law is changed, i.e. at least within a year time. In these cases, the new declaration which namely abolishes the previous recommendation is creating a legal vacuum. The new situation is not better as regards non CEPT countries. Whereas they could previously conform with the recommendation by simply signing the CEPT form allowing the circulation of terminals on their territory, the new declaration, because of its binding character, just doesn't concern them.

A one stop shopping agreement between European countries for mobile satellite services would be a great plus for service providers who spend large amounts of money to obtain licences in all the countries they intend to cover. The problem is currently being solved regarding the numerous equipment tests needed until now in laboratories registered in each country. The CEPT is giving its approval to a certain number of laboratories Europe-wide, so that equipment tests performed in a CEPT approved laboratory anywhere in Europe will be valid in other countries. This will avoid having to perform several times the same tests and thus reduce the costs and time spent by operators on technical approval issues.

The effect of this measure will be to extend to CEPT countries the mutual recognition system already implemented in the EC since the 1991 Type Approval Directive.

Some equivalent measures of harmonization on the service licensing regimes of European countries would be welcome by the industry. However, the example previoulsy mentionned of a "simplification" introduced by the CEPT in the field of free circulation of terminals raises questions on the interest for operators of such harmonization measures. It is unclear in particular wether the creation of a one-stop-shopping counter would not just add another step in the licensing process, without speeding up anything if the coordinator has no specific powers. These fears expressed by operators may not be founded, but they underline in any case under which angle the services offered by a future one-stop-shopping counter would have to be advertised.

Another more fundamental objection to such a harmonization measure in the field of mobile satellite services is the limited number of applicants for licences to offer these services. This objection has been raised by both the radiodetermination service providers (Euteltracs) and the SPCS providers that we contacted for a complement of information (some also plan to offer radiodetermination services jointly with their main telecommunication services). In fact, Euteltracs is the sole system of its kind operating in Europe at the moment, and regarding SPCS providers, a maximum of three global service providers only can be reasonably expected, among which Iridium, Globalstar and ICO that are the three major projects. The number of licences that will be required from the countries will therefore be equally limited and would not justify the setting up of a one-stop-shopping procedure. Certain service providers (SPCS) also point out that the decision to grant them a licence or not is highly political, especially for systems designed to by-pass national fixed networks. It is very unlikely therefore that it could be delegated to a third party, or that the coordination work realised by this third party would be of any significance in regard to the political decisions needed in each country at the national level.

The need for a harmonized licensing procedure Europe-wide is however crucial.

B) - INMARSAT

Inmarsat is an international treaty organization, with 76 member countries. Each of them designates a national telecom organization as an Inmarsat Signatory to invest in the organization, operate groung earth stations linked to the Inmarsat satellite system, and offer the Inmarsat services nationally. Inmarsat services, originally provided to maritime users, were later extended to aeronautical and land mobile applications.

Inmarsat's traditional service, Inmarsat A, has been in operation since the mid 1970s, offering telephone, fax, telex, data and high-speed data on an analog mode. In addition, the organization has been offering since January 1991 a simpler two-way data messaging service designed for smaller ships and called Inmarsat C. This service is as of now the smallest satellite communications system in existence and, with 14,700 terminals in use, one of the largest mobile data networks in use. It can support store-and-forward messaging, telex, file transfer, data reporting, polling, and group addressing.

Two additional services were introduced in 1992 and 1993 respectively. They are Inmarsat B and Inmarsat M services. Inmarsat B offers the same potential as Inmarsat A, based, however, on digital technology and with increased capacity. In addition to telephone and telex, this service allows data transmission (up to 16 Kbits per second) and fax (9.6 Kbits per second). Although Inmarsat B is designed to progressively replace the Inmarsat A service, the latter is not scheduled to be eliminated until 2005. The Inmarsat M service is a new voice, low speed fax and data transmission service, based on digital technology and available from light-weight briefcase-sized terminals. Inmarsat M and B services went truly global in November 1993 with the opening of an earth station in Perth, Australia.

No specific licence is needed for signatories to provide maritime services, apart form the authorisation to set-up and operate the necessary earth stations. Global coverage is achieved as of today and there is no need for additional authorizations in the foreseeable future.

A) - Aeronautical services

Since November 1990, the organization offers aeronautical communication services. This extension of activity was allowed by a modification in the Inmarsat Charter voted by the General Assembly in 1985 following a period of tests. Services are jointly defined with the International Civil Aviation Organization (ICAO) in the context of a cooperation agreement made in July 1989. ICAO is in charge of defining standards and proceedings recommended internationally for aeronautical communications. The Aeronautical Services division offers three types of services. Inmarsat Aero-L, the first one, launched in 1990, provides real time data communications for flight-deck and airline operation purposes. Aero H provides aeronautical voice and data transmission for both operational and passenger communications, and Aero-C, based on the Inmarsat C system, provides a cheaper in-flight data communication service for smaller aircrafts.

Inmarsat's aeronautical services are marketed through several consortia, mostly composed of signatories. Signatories for the UK, Norway and Singapore offer services under the "Skyphone" trade name. Canadian, French and Australian signatories, as well as IDB Aero Nautical, an American company, back the Satellite Aircom consortium. Finally, Japanese and American signatories teamed up to provide the same service through a company called Aeronautical Radio Inc. (ARINC, which is in turn linked through an agreement with Skyphone) and markets it under the name "Global Link".

Inmarsat leases the capacity on its satellites, the services being operated by consortia of terrestrial operators who invest in the necessary earth stations. Three consortia have thus formed:

SKYPHONE: composed with Singapore Telecom, Norway Telecom and BT International. This consortium operates from three earth stations based in Singapore, in Norway, and in the UK (Goonhilly).

GLOBALINK: composed with Comsat (US), KDD (Japan) and Aeronautical Radio Inc. (ARINC). Globalink is affiliated to Skyphone and is actually reselling Skyphone services. Earth stations used by Globalink are located in Yamagushi (Japan), Santa Paula and Southbury (USA).

SATELLITE AIRCOM: made up of OTC (Australia), France Télécom, Téléglobe Canada and SITA. Four earth stations are used by the consortium: in Perth (Australia), Aussagel (France), Weir (Canada) and Nyles Canyon (US).

There are two types of licences needed to operate an aeronautical telecommunications service in a country.

1 - The first licence is a licence to set up and operate the earth stations. This licence is therefore necessary in each country where the consortium operates a terrestrial infrastructure. However, given the limited number of earth stations needed to operate an aeronautical communications service, and since the national operators involved in consortia use existing earth stations, this aspect of the licensing process is not a significant issue in the development of an aeronautical communications service.

2 - The second licence concerns the authorization to offer the service. This aspect is more interesting since it encounters a certain legal vacuum. Indeed, the operator licence required is granted in the country where the consortium actually offers the service to airline companies, and not in each country where the service is in fact provided to the airline. As a result, a plane of a French company flying over Poland and recieving the Satellite Aircom services as it is in the Polish air territory will not need any licence from the Polish government. This is all the more curious that the Polish land territory also receives airwaves that are sent from the satellite to the aircraft. But frequency coordination is appearently not needed since services operate in pre-allocated bands. The resulting situation may look somewhat awkward. It is however prevailing de-facto since the first aeronautical services came into operation. This means that only a very limited number of licences is required, in the countries where a consortium member plans to offer the service.

Getting an operator licence to offer aeronautical services is not a problem for the consortia we mentionned above. Those we interviewed are not even conscious that a service licence is required, especially since the licence is not granted to them but directly to consortium members.

In any case, Inmarsat services, either aeronautical or land mobile, remain an extremely marginal issue in the eyes of regulators. They do not represent a real market and no competitor to the PTOs and international organizations is expected before the SPCS services are introduced. Only then will the operators reach a mass market, thanks to hand-held terminals and reduced communications costs.

It is worth mentionning that there exists a second type of aeronautical communications systems, earth based. They are used either on their own, as for US in-land flights, or as a complement by the satellite-based operators we mentionned above. In these systems, the trajectory of flying aircrafts is followed from a certain number of earth stations, without relying on satellites for the transmission of communications. These earth-based systems' coverage is bound to be limited to flights above land spaces, since only earth stations are used to track the planes. In any case, because they don't use any satellite links, they are excluded from the scope of this study.

B) - Land Mobile Services

The offering of land mobile services was allowed by a modification to the organization's status voted in 1989 by the General Assembly, providing for the extension of Inmarsat's original mission. They are a priority for Inmarsat since they represent the fastest growing of the organization's three main markets.

They include voice, fax and data services provided through transportable terminals such as Inmarsat-C and Inmarsat-M, or transportable versions of bigger Inmarsat A and B terminals for applications requiring higher data rates. It is worth mentionning that at the end of 1995, more than 23,000 were in operation worldwide, after ten years of operation. This figure underlines the fact that Inmarsat services are not a mass market and remains targeted to very specialised applications.

As a result, the licensing process for Inmarsat services is not comparable to that of other mobile services and the service itself is offered in a very different way than usual telecom services. The only licence required concerns the installation and operation of the earth station needed to re-route calls from the Inmarsat terminals to the organization's space segment. Once the earth station exists and is approved for Inmarsat services offering, no special authorization is required for the operator to offer the service. This means that once the local operator has an earth station, he can re-route the service without special authorization.

In most cases, although not systematically, the Inmarsat signatories are the operators for these earth stations. 38 countries are now equipped with land earth stations. In countries where no earth station is available, an operator licence is required for the service provider who will then use the earth station of a neighbouring country'operator throuth an ad-hoc agreement. These licences are normally carried by the national PTO.

There is however one specific authorization that is needed for the various Inmarsat land mobile services to be implemented in each country: a free circulation licence for Inmarsat terminals, as defined until recently by a "Recommendation" from the CEPT (see above paragraph on Euteltracs). However, since each member country remains free to apply it or not on a case by case basis, the use of certain terminals, and thus the provision of corresponding services, is not allowed in all countries. The Inmarsat A service, for example, is available almost anywhere since it has been existing for some time already. But the situation is different for services A and M, which are not yet available everywhere in the world, although the situation is improving rapidly. Regarding CEPT countries anyway, the recent transformation of the CEPT's "Recommendation" into a "Declaration", will make free circulation of approved terminals compulsory in all member countries, thus solving the problem as far as Europe in concerned.

In the meantime, however, a centralised source of information with an exact description of which terminals are allowed to operate in which countries would prove extremely useful both for Inmarsat and for its service users.

Finally, although SPCS remain outside the scope of this study, it is worth mentionning that Inmarsat's move in this field, with the creation of ICO, is a response to the enormous threat they constitute for traditional Inmarsat services that were limited until now to marginal applications in their land-based and aeronautical versions. Indeed, all our interviewees pointed out that SPCS are definitely the main issues in terms of licensing since they will merge the limited existing applications into one mass market where competition is already thriving. Biggest shareholders in ICO will be the service distributors on their allocated zones. They obtained a 6.7% equity in exchange for a $94 million investment. They include Beijing Maritime & Navigation Co., Comsat, DeTeMobil, KDD, Singapore Telecom, and Videsh Sanchar Nidam of India. They were joined by Hughes at the end of 1995, thus raising the number of investors to 44 and the investment to $1.5 billion. Inmarsat, for its part, retains a 15% equity in exchange for $150 million in direct investment and the development work on Inmarsat P, as the project was originally named, over the four previous years.

C) - CONCLUSION ON MSS

As a conclusion, it seems clear to us that land mobile and aeronautical services do not present any scope for a one stop shopping procedure to be installed Europe-wide for service licensing. The limited number of operators in a market which is all but competitive, or the limited number of licences required (no service licences in the case of Inmarsat land mobile services), would make it completely irrelevant.

Regarding simpler harmonized procedures, it seems clear that there would be a need for them, at least for SPCS. But there again, the limited number of applicants and the one-shot character of their application, do not make the setting up of such procedures worthwile. More pragmatically, SPCS providers have filed applications with the EC-DGXIII in which they expose their expectations in terms of harmonized licencing, and an answer could be found in the near future.

A harmonized procedure is all the less necessary, that operators of mobile satellite services interviewed seem to encounter much less problems than VSAT service providers in proceeding with their licence applications. In fact, a large number of them are backed by established operators, who already hold licences and maintain regular contacts with their national regulators. In addition, partners in major MSS projects that are in charge of getting the licences are focused on a very limited number of countries only, where they will be in charge of marketing the services. Obtaining licences in two or three countries (where you are an established operator) is in no way comparable to obtaining them in a large number of countries (where you are unknown from the regulators) as is the case for VSAT service providers. The needs and expectations of both types of service providers have therefore very little in common.

CHAPTER IV - EXPECTATIONS OF VSAT SERVICE PROVIDERS IN TERMS OF LICENSING

This assessment of service providers' licensing needs is based on the answers of 17 VSAT service providers located in Western, Eastern Europe or in the USA. 12 of them are among the top 21 VSAT operators on the continent, and those twelve only represent 66% of the total number of VSAT terminals installed in Europe as of February 1996 ("European VSAT Monitor" data). In our opinion, the representativity of the answers we obtained can therefore be considered as satisfactory.

In conformity with work requirements, we have conducted the interviews by phone, around seven precise questions designed to assess the demand for a One Stop Shopping procedure among would-be licensees. These questions are as follows:

1 - Do you intend to apply for VSAT/SNG licences in other European countries than those where you already operate ? which ones ?

2 - Would you need information on service regulation? on frequency regulation?

3 - Would you favour a uniform application form for all countries where you want to apply?

4 - Would you favour a single form for service licence and frequency licence?

5 - Do you want to have a direct contact with your various national regulators, or would an OSS procedure be satisfactory?

6 - Would you use an OSS procedure if it covered only the service licensing aspect?

7 - Would you use an OSS procedure if it covered both service and frequency licences?

These seven first questions were followed by an open question, leading to a wider conversation on the problems licence applicants generally encounter when they seek to obtain a VSAT licence in European countries:

8 - Have you encountered any problems in obtaining service and frequency licences in the countries where you operate? if so which ones ?

This last question has brought interesting answers, that will be treated separately in a second title, the first title being focused on the answers to the first seven questions.

A) - DEMAND FOR A OSS PROCEDURE

For a more convenient reading, the results will be presented for each of the questions one after the other.

1) - When asked about their needs for licences in Europe, a vast majority of service providers interviewed are planning to apply for licences in other European countries than those where they already operate, and whenever possible are planning to do so directly rather than through local partners. One third of interviewees declare that they will need licences in the whole of geographic Europe, which is their target for expansion. The division between Eastern and Western Europe is still there, with western operators quoting Eastern and Central Europe as one of their priorities (25%) and an eastern operator (GTS-Hungary) already present in former communist countries and willing to expand into the European Union.

Apart from eastern Europe, almost all countries are mentionned as a target for future expansion. However, operators put a certain stress on Nordic countries (Sweden Norway, Finland, danemark) and on some countries where the deregulation of satellite communications has not been implemented yet in spite of EU directives such as Italy and Spain, and in a lesser measure Greece and Portugal.

In a minority of cases, VSAT operators seem to have no pre-defined strategy as to where they intend to expand their coverage, but rather intend to follow their clients where they will ask for the installation of links. In any case, even if this attitude is not the rule regarding the definition of an expansion strategy, the possibility to follow clients where they need to have VSAT links installed is regarded as of the utmost importance by all operators. As a result, administrative hurdles and lentors are widely considered by service providers as a major obstacle to the "normal" development of their business.

2)- Regarding the type of information needed by licence applicants, a vast majority of the two thirds of VSAT operators is asking for information on the service licensing process, on the application conditions and on the administrative procedures to follow. In fact, practical information with contact names (people who would "take ownership" of their application) for each national regulator seems to be a top priority. So is the information on the costs of licences, that are too often varying. For those operators who do not require it, information on the frequency licensing process seems superfluous since they operate in pre-allocated frequency bands (the Ku band), and no national regulator should deny them access to these frequencies since it would infringe international agreements of the last WARC (World Administrative Radio Conference) in 1995.

The other third of interviewees is asking for information on both the service and frequency licensing processes. The latter is particularly needed when service providers operate in the C-band, which is the case when they use Russian satellites. Information is also needed on equipment approval procedures.

Finally, a small minority require no information at all since they have offices in each and every country where they operate and these offices are directly filing the licence application with their national regulators.

3) - When asked wether they would favour a uniform application form for all countries where they want to apply, operators are unanimous to answer that, indeed, they would. Several even stress that "it sounds too good to be true", which is also literally what they mean since they seem somewhat skeptical on what they percieve to be a particularly ambitious project. As a result, a significant minority (one third) declare to be favourable to such a simplified procedure under the condition that it would simplify their present task and quicken the whole process. Previous experiences with the existing MOU between France, Germany, the Netherlands and the UK, have not always been convincing.

One licence applicant, for example, reports that the application format seems to have been judged insufficient in France and in the Netherlands where national application forms had to be used instead. If the common MOU application form is not in fact as common as it should, is is however a very good document since the same applicant based other application forms on its layout with some success in several other countries (!). Another reproach made to the MOU procedure, is that no special or detailled information on the foreign licensing regimes can be asked to the national regulator acting as coordinator. Some licensees thus regret not having a direct contact with all their regulators and a full understanding of the procedures. Generally speaking, however, the MOU is perceived by licensees as a great source of comfort, which makes their task much easier.

One of the aspects of this MOU, in any case, is perceived to be particularly useful: the time scale it imposes on national regulators to make an answer to licence applications. The VSAT operators we interviewed consider this is one of the most positive aspects to be expected from an OSS (One Stop Shopping) agreement since it would address one of their biggest problems (see chapter II). Some also stress that setting up a harmonised procedure would be particularly helpful in pushing national regulators to question the amount and diversity of information they require from applicants. "Why should I ask this and that when other national regulators don't?" is the question which could come to their minds. In fact, because they had to apply for licences in various countries, operators feel they are in a good position to compare the informations required from one country to another. They tend thus to identify a common denominator, which they consider as justified, whereas national particularities (asking photos as in Switzerland or the Eutelsat code for the links established as in Belgium) are suspected to be unnecessary hurdles.

4) - Regarding wether they would favour a single form for service licence and frequency licence, a majority of the two thirds of interviewees answer that they would, since it would make things easier for them in terms of paper work. This is all the more true for operators working in the Ku frequency band, where frequency licensing is supposed to be a mere formality.

The other third, however, are more cautious in their approach since for them, the two processes remain separate by nature. For example, when a service licence is required, the exact location of all sites is still unknown. Identically, the location of each new site to be installed in the future, which may have to be frequency-cleared, is also unknown. In order to best benefit from the OSS procedure, however, some applicants would appreciate if the two forms, although separate, were handled by the same organization. In our opinion, the fear behind this request for two separate forms by a significant minority is that the existence of one only form for the two licences would put the whole licensing process (service licence included) into question when asking for frequency approval of a new site. There may therefore be easy ways to accomodate this reluctance.

5) - When asked wether they would accept loosing their direct contact with national regulators in favour of a OSS agreement, an overwhelming majority (80%) of licence applicants answer that they definitely would. The major reason for this answer is that a direct contact is always possible whenever needed in the future. All the more so if the administration in charge of implementing the OSS directs specific requests to the right contact persons at national regulators'.

Several interviewees, however, stress that the interest of by-passing national regulators remains very much linked to what amount of authority has been transferred to the new administration: a determining factor in assessing wether the new procedure would make them save or waste time. A OSS procedure would also imply that the coordinator be particularly aware of national regulations it covers (unless they are completely harmonised). A small minority of interviewees had the chance of using the previous MOU between four countries. There experience is that reciprocal knowledge of national regulations remains a weak point in a unified procedure such as the one set up by the MOU and the direct contact with national regulators remains sometimes necessary. Finally, and once again, what applicants mostly fear if they loose the direct contact with their regulators is that the whole process would become more lengthy. This is therefore one of the main issues to address, as well as making sure that direct contacts with regulators will be facilitated for particular problems or licence modifications.

6 & 7) - In questions 6 and 7, interviewees were asked wether they would use a OSS agreement if it covered only the service licensing aspect, and if it covered both the licensing and frequency aspects. The unanimous answer is yes in both cases, although the more aspects are covered the more helpful the simplified procedure. As a result, a good 50% of applicants would clearly regret that the OSS limit its field of competence to the service licensing.

B) - MAJOR PROBLEMS ENCOUNTERED BY LICENCE APPLICANTS IN EUROPE

The last question asked to interviewees, on the major problems they encounter applying for licences in Europe, was very much intended as an invitation for an open discussion on what they consider the major issues in VSAT licensing Europe wide. They will be discussed in the following paragraphs, by decreasing order of importance.

1) - The first issue, raised by almost half of the licence applicants, is related to the **licensing fees** charged by national regulators. Basically, the weight of fees very much depends on the general competitive environment in which VSAT service providers are operating. It is worth remembering that four to five years ago the average price charged to the customer per site and per month was around $500. Over the last few years, increasing competition with terrestrial networks has reduced this rate to around $300, and is expected to reduce it further to $200 in the next two years. Unfortunately, this increased pressure of the competitive environment coincided with a regular increase in fees charged by national regulators in certain countries. As a result, operators find themselves squeezed between rising costs and decreasing retail prices. Most interviewees consider that licensing fees should represent a maximum of 10% of the final price charged to the customer.

In major EU countries such as France, the UK or Germany, the level of fees charged is considered reasonable. Germany has been quoted twice as the acceptable top limit. On the contrary, costs in Sweden, Belgium, Denmark or Switzerland are a source of concern. Although fees are even higher in Eastern Europe, they remain acceptable since there are fewer alternatives and VSAT networks do not face there the direct competition of terrestrial networks. According to certain service providers, in many countries fees have been calculated on the basis of low forecasts of demand. Five years ago, in fact, there were about 2000 VSAT terminals in operation in Europe, including 1,500 in Eastern Germany. Whereas today, there are some 10,000 installed, plus as many on order. Understandably, as the growth rate is expected to rise, the pricing goes down and the fees charged by some countries become prohibitive.

The worst case, however, is in those countries that haven't deregulated their market yet and where market entrants have to obtain their licence via an in-country service provider. The latter is then free to charge whatever amount he thinks fit for the priviledge of using the licence, which can be very expensive for the original applicant, thus hampering its competitivity.

Setting up a balanced fee system would imply charging a reduced fee for the service licence and additional fees per station, ideally related to monthly amortization of the equipment. The total fee would therefore be in proportion of the total investment made by the operator. In regard to this "ideal" structure, present fees are totally inadequate, and sometimes counter-productive. A number of administrations (Belgium, Holland) relate the fee to the data rate, rather than to the aggregate amount of data transmitted. The result is a discrimination against performing equipment, which is a non-sense.

Generally speaking, VSAT operators get the impression that licencing fees are not related to anything than the desire by some administrations to make money from their position. The rates in Poland have been several times pointed out as an example of "extortionate" fee levels. The argument normally forwarded by regulators that the fees charged correspond to a service such as frequency coordination seems ill-founded to the service providers, since many are using the pre-allocated Ku band offerd on Eutelsat satellites. The work of regulators is therefore minimal. Worth mentionning also, is the reasonning behind fee levels proposed to an operator by the Cyprus regulator. Asked to pay the extroardinary amount of DM 3,500 per station and per month, the operator who enquired the reason for this amount was answered that Cyprus's PTO had installed a sub-marine cable on which equivalent capacity could be rent for DM 3,500. Since they needed the money back on their investment...

As a result, licensing fees are rather percieved by operators as a mere tax, arbitrarily varying from one year to the other (and this is another major problem for mid-term business planning). As such, it is suspected to be used as a deterrent to VSAT networks in countries where by-passing the terrestrial network of local PTOs is discouraged. Fee levels would therefore be used in the EU as a means to counterbalance the compulsory liberalization of the sector imposed by Brussels. The cases of Spain, Portugal and Italy, countries that have not even implemented yet the EU directives, thus raises the greatest concern in this respect.

To conclude with this topic, let us mention the experience of certain operators who gained the conviction that fee levels were fixed in a completely arbitrary way when they realised that they could negociate them with their national regulators.

2) - Second among the major difficulties faced by licence applicants, and quoted by one third of them, is the **difficulty to find the right person to talk to**, who would take charge of their application. This may be due partly to the present on-going restructuring of national regulatory regimes in Europe. Licence appliants thus encounter problems finding out which institution manages licensing in each country. Responsibility for satellite communications licensing has in some cases been moving from PTT to Radio Agencies, and in other cases some report having to apply to both, for two sets of documents.

The search for someone to handle their application is considered by certain licensees as a very difficult part of the process of obtaining a licence to operate a VSAT network, simply because they don't have the right information. Starting with a contact name and telephone number, they may have to call, send letters and faxes until they find the right person. On top of that, until recently, regulatory authorities have sometimes been percieved as reluctant and not very helpful towards new market entrants (eg. in Ireland, Belgium and Luxembourg).

As a result, some licensees claim that in certain cases they have had up to three contacts for a licence application, and another 2 for the application for equipment type approval. Because it becomes quickly difficult to explain the intricacies of the application to every new person involved, the applicant badly feels the need for a single or at least a limited number of contact persons. Providing a list of such persons, on a Europe-wide basis, would be extremely helpful.

3) - The **language barrier** is another problem which is often raised by licence applicants (30% of them). Whereas some countries accept applications in English (eg. Finland or Holland), other countries conduct all their correspondance and documentation in their own language (France, Germany). Even if having to use the national language can be considered a normal investment for operators wishing to do business in another country, it remains a barrier for a number of applicants. This is not so much the case for major companies who either have the personnel qualified for this purpose or have subsidiaries in each country who file the licence application directly. But it is more of a handicap for smaller operators, thum hampering competition among VSAT operators.

For the company's administrative staff in charge of processing with the applications, a translation of the administrative documents in other European languages could prove very helpful.

4) - The **lack of information**, on all aspects of the licensing process, is also raised as an issue by 25% of applicants, as well as **equipment approval**, for the same proportion of interviewees. There is no need to insist on the latter question, since the CEPT is currently implementing a system of approved laboratories that will lead to a Europe-wide mutual recognition of equipment tests. Let us mention however the preference of certain operators for an even more liberalized system such as the French one, where the service provider merely declares that his equipment is in conformity with ETSI standards, and therefore bears the responsibility for it. An operator stressed that in any case ETSI conformity is in the interest of the operator himself who does not want to perturbate his own equipment.

5) - Finally, a limited number of licence applicants pointed out as major problems the fact that the liberalization of satellite communications in the EU was not completed yet, or that procedures were too long and that their time scale cold not be forecasted. Other secondary issues concern the countries were licences have to be in the client's name, where access to space segment is problematic as well as individual site clearances. These secondary issues however, have only been mentionned once by the operators we interviewed and are therefore mentionned for memo only.

C) - CONCLUSION ON VSAT USERS' NEEDS

As a conclusion, it is clear that there is a significant demand on the part of VSAT operators for a harmonized/simplified application procedure for licences in the various European countries. There is however a certain skepticism regarding the efficiency that can be reasonably expected from an organization that would coordinate applications in several countries. These fears concern in particular the following issues:

- the time needed for these applications,
- the status of simpler procedures such as mere modifications of licences,
- the need for particular information that only national regulators can provide,
- how far the information required by regulators can be harmonised (the existing MOU form has been criticised for being falsely harmonised with each country's requests remaining extremely different).

In addition to these fears concerning a potential OSS procedure, operators presently face a number of problems when dealing directly with national regulators. Some may be independant from the harmonised licensing process but could however be addressed in its framework, thus adding a lot to the interest raised with VSAT service providers. They concern the following aspects:

- licensing fees,
- "small" but extremely handicapping hurdles such as: finding the right person to talk to, language problems, lack of information, lengthy processes,
- liberalization not completed in all countries where it should be.

In this context, it seems clear to us that there definitely is an opportunity and a need for a harmonized licensing process for VSAT services in CEPT countries.

CHAPTER V - GENERAL CONCLUSION AND RECOMMENDATIONS

In spite of wide differences in the VSAT/SNG licensing regimes of the various CEPT countries, a certain number of common points can be traced that stem mostly from the EU-driven deregulation of national telecommunication markets. As a result, certain trends encountered in most countries surveyed can be considered as drawing a common basis among national regulations:

- most often, all services are allowed on VSAT networks except public switched voice telephony which remains the monopoly of the national telecom operator

- licensing is often divided between a licence for service offering and radio licences for each earth station (sometimes transmitting earth stations only), the latter being designed to ensure appropriate frequency coordination in-country

- site clearance is required in most countries, thus protecting sensitive areas such as airports from radio interferences

- fee structures often stick to the licensing procedure, with a one-off administrative fee, plus yearly (or regular) radio allocation fees

These observations could be the basis of a harmonization among European countries' licensing procedures, which could go further than the existing MOU between France, Germany, the Netherlands and the UK.

In the present MOU's framework, the coordinating role, possibly incumbing to any of the national regulators, requires that each of them be aware of all other three countries' regulations and procedures so as to best advise the operator in targeting his request and in providing the right information. But this is not always the case and is only possible, at least in theory, when only a limited number of countries are concerned. In the framework of a wider agreement, eg covering the EU, no national regulator can be expected to be familiar with the licensing procedures of the other fourteen countries (and even more if the MOU were to be extended to other CEPT countries). Nor would all national administrations have the means to play efficiently such a coordination role.

There is therefore a strong case for a unique coordinator to be appointed in case of a pan-European one-stop-shopping procedure. In this case, ETO seems widely expected to fill this role by the national regulators and would also be extremely wellcome by licence applicants. A very positive evolution would lie in a further European integration, ie in a mutual recognition of licences. And this is what most national regulators wish to happen. In this case, certain regulators (Germany, Netherlands, France) seem to agree on the shape this recognition could take: a Europe-wide licence authorizing an operator to provide services in all countries concerned (EU?) on the one hand, and national authorizations for the set-up of networks and the installation of head stations in each countries on the other hand. This two speed licensing process would leave countries responsible for national issues such as frequency harmonization. National regulators seem to agree that in these conditions licensing an operator to provide services Europe-wide is a competence which could be transferred to ETO, which could then act as a mailbox coordinating the national procedures of the second stage.

Service providers, as for them, are eager to see these procedures simplified. In particular, having to deal with one contact person only is widely percieved as a great advantage by those who benefited from the existing MOU as well as by those who didn't. The call for a single CEPT licence is also clear on their side but it must be clear that ETO's efficiency will depend on the amount of powers it will receive from the national regulators. These powers may not concern the decision of granting the licence itself but they must in any case concern the TIMING of the licensing process. This is essential in our opinion to make procedure a real improvement for applicants.

In any case, a solution which would consist for ETO to act as a simple mailbox, including for the service licence, would not be satisfactory since it would provide no additional service and since it would limit the contacts between licensees and regulators. It could rapidly appear as a simple waste of time for applicants, who would have to go through yet another administration.

This said, the question remains wether ETO would presently have the means to centralize the procedures in a large number of countries. This would require ETO to hire well trained staff, ideally with an experience at national regulators of all countries covered, who would be able to inform applicants, and advise them on their specific projects regarding the possibilities offered by national regulations.

In our opinion, due to the diversity of national regulations and the particular informations or licence modifications that operators may require, the only practicable solution is the following: ETO should encourage whenever appropriate a direct contact of licensees with their regulators in particular by providing a list of contact names and directing special enquiries to the right persons in national administrations. It is a sort of "subsidiarity" principle that should be applied here, on a day to day basis, whereby ETO would directly handle major issues sur as service licensing, and would efficiently direct operators to the national regulators for other issues (special information, licence modification, site clearance,...) that can be better dealt with on a national level.

Ideally, certain issues such as the information required by regulators and the fees charged for the licences could also be harmonized in the framework of this centralised procedure, bearing in mind that the total fee shoud remain in proportion with the investment made by operators and the return they may reasonably expect from it. A fee structure taking into account the number of stations, emitting or recieving, would be most appropriate. It could for example include a one-off fee charged by ETO for the CEPT service license, and yearly fees for national radio allocation licenses. Such an evolution, however, is only possible as far as fees and administrative hurdles do not reflect a political will to hamper the development of VSATs, or simply to make money on operators. In case they were harmonized, ETO could charge directly the fees required for both types of licences, and then pay them back to the countries concerned.

Finally, if a new pan-European procedure were to be launched, it would be essential to promote awareness of it among potential applicants, since the lack of information (even on existing simplified procedures such as the MOU, or on information sources as the ETO data base) remains one of the main handicaps faced by operators. We think the promotion of this new procedure should be articulated around the following elements:

- commitment of regulators to a time scale in the framework of the harmonized procedure,
- designation of one contact person, who would take ownership of the whole procedure,
- simplification of paper work, and possibly harmonization of the information required by each country (which is not the case in the present MOU between four countries)
- the information provided on operating conditions, either by ETO or directly by the competent contact persons at national regulators'.