

FINAL REPORT

on

PROPOSAL FOR A SATELLITE PERSONAL COMMUNICATION SERVICES LICENSING SCHEME

(S-PCS)



17 April 1996

This final report on S-PCS licensing procedures and conditions was carried out by ETO for the purpose of a work order that ETO has undertaken on behalf of ECTRA for the Commission of the European Union.

It should be noted that the presentation of the study reflects the views of ECTRA on the path to be followed for establishing a European licensing regime on S-PCS; nevertheless ECTRA does not endorse all the details contained in the report. ECTRA has emphasised that further studies are needed in order to decide and to implement such a European licensing regime in CEPT countries.

Work order no 48 314

Table of contents for the final report:

	<i>page</i>
0-Summary	3
1-Presentation of the report,	
1.1-ETO presentation,	7
1.2-presentation of the work order,	7
1.3-schedule and methodology.	8
2-Background of the existing situation and S-PCS definition,	9
2.1-Definition of S-PCS,	10
2.2-The Union's policy on satellites,	12
2.3-S-PCS licensing regimes,	15
2.4-The US situation,	19
2.5-Fees and Numbering,	20
2.6-Lawful interception	22
3-Presentation of an S-PCS licensing regime;	
3.1-Conditions of the proposed licensing regime	23
3.2-Procedures of licensing regimes	29
3.3-Entities which must be granted licences	32
4-Results of the second phase;	
4.1-Invitation to interested parties	33
4.2-The ERC Frequency decision on S-PCS,	38
4.3-Criteria for a selection process,	41
4.4-The harmonisation of terminal equipment,	43
4.5-The coordination of national authorisations,	45
4.6-Time-schedule.	49
5- Conclusions;	50

Annexes:

- 1-Work order between the Commission and ETO,
- 2-Questionnaires on licensing regimes and fees sent to ECTRA members,
- 3-Council resolution of 7 December 1993 on S-PCS,
- 4-Commission Directive 94/46/EC of 13 October 1994,
- 5-Council resolution of 22 December 1994 on the Community's satellite communication policy,
- 6-ECTRA decision on the European Telephony Numbering Space (ETNS).
- 7-Potential S-PCS competitors,
- 8-Council resolution on the lawful interception of telecommunications,
- 9-Draft arrangement for a OSS procedure for VSAT and SNG,
- 10-Annex 1 of the ERC rules of procedures (Decision mechanism)
- 11-Proposal for a European Decision on S-PCS.
- 12-Guide to the OSS for European telecommunications services,
- 13-ITU coordination procedure for satellites,

This document was prepared by J-Y Montfort, ETO director, with the kind participation of Andreas Geiss from ERO and members of the ECTRA Project Team on Mobile. Helpful comments were received from the European Commission experts and ERC members as well as members of the Joint Project Team between ERC and ECTRA on Mobile Satellite Services.

SUMMARY

Satellite Personal Communication Services are a new generation of mobile phones using satellite transmission links and covering a large part of the world. First projects have commenced in the USA and companies from other regions in the world have been involved in providing these services throughout the world.

The Commission, the European Parliament and the Council, considering the importance of this issue, have given the CEPT the task of proposing licensing conditions and of contributing to the establishment of a European licensing procedure. The present report, established by ETO on behalf of ECTRA and in cooperation with ERO and ERC, should be considered as a contribution to this task. On 7 February 1996, the report was endorsed by the ECTRA plenary which considered that it gave a presentation of the way in which Europe should handle this issue.

The FCC has been working on S-PCS for several years and has already granted conditional licences to three systems that will be launched during 1997 and 1998 in order that services may be offered just before the next century. It should be noted that these licences do not include the right to operate or to provide services. Furthermore, the licensees are licenced as resellers, not as operators of their respective systems. Europe commenced work on S-PCS later on. ETSI will probably propose European standards for terminal equipment in mid 1997. In mid 1995, ERO carried out a report for the Commission on frequency aspects of S-PCS and ETO carried out this report on aspects of licensing. The ETO study was conducted over seven months and was established in cooperation with experts from National Regulatory Authorities within the ECTRA Project Team on Mobile and adopted by the ECTRA plenary. The frequency aspects section was carried out in cooperation with ERO and interested parties were consulted through the Joint Project Team between ERC and ECTRA on Mobile Satellite Services in which some potential operators were also involved. On 7 March, the report was also presented to ERC for comments.

The work requirements assigned to ETO are the following:

- (1) to identify different service elements within the category of services covered by this work order that have to be distinguished between for the purpose of authorisations.
- (2) to co-ordinate the results with ERC/ERO whose objective is to establish harmonised conditions for the use of relevant frequency bands, and to integrate these results with the proposed harmonised conditions.
- (3) to propose harmonised licensing conditions as well as harmonised procedures for a first group of 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 an internal market, and to propose for such elements identified, a procedure that would enable a common position to be established in Europe.

Chapter one of the report deals with the presentation of the study and its time-schedule and methodology. Chapter two presents the background of the existing situation with

regard to licensing and proposes a definition of S-PCS. This chapter also analyses Union policy and the US situation with regard to S-PCS, as well as specific issues such as fees, numbering and lawful interception.

An analysis of the licensing regimes for satellite and mobile systems in European countries has shown that the S-PCS licensing regime must be divided into four elements which require either individual authorisations or specific rules. These elements are i) the system which includes space segment and the provision of services, ii) earth stations, iii) interconnection with public networks and iv) terminal equipment. In response to the first requirement i.e. the need to identify service elements, ETO proposes to consider the above-mentioned four elements of the system for which separate licensing procedures are required or specific rules apply and for which separate entities could also be granted a licence.

In addition, ETO also proposes that individual coordinated licensing procedures be organised for each frequency band. This would enable licensing procedures to be divided into procedures dealing with systems transmitting data only and systems transmitting Voice Telephony - These two kinds of systems are known as "small LEOs" and "big LEOs".

With regard to licensing procedures, ITU frequency coordination procedures must be undertaken by the NRAs responsible for the assignment of frequency to a system or earth stations. It could take several years to establish such a procedure and work should therefore begin well in advance and be organised in conjunction with licensing procedures.

One of the reasons for which S-PCS is currently being promoted is that it is a means of providing services in areas where telecommunications infrastructures are under developed or where conventional terrestrial networks would be too expensive to implement. In order to allow telecommunication between these areas and areas where other means still exist, S-PCS must be interconnected with the public terrestrial networks (fixed and mobile) on objective and non-discriminatory terms and conditions. It is recognised bilateral agreements between operators has been recognised as the most suitable procedure. NRAs only intervene when the two parties involved cannot reach an agreement, therefore NRAs should provide for an adequate dispute settlement procedure.

The following definition of S-PCS has been proposed: "Radiocommunication-based public services offered to end users, where there is direct communication from terminal equipment, including handheld terminals, to satellites." This definition includes small and big LEOS but excludes VSAT and SNG.

The report provides information on Numbering and Lawful interception. With regard to numbering, systems could choose either national numbers or global numbers. These global numbers will be provided by a new plan to be established when ITU decides on a single Country code shared by all Global Mobile Satellite systems.

The establishment of a European Numbering Scheme, expected for mid 1997, could also provide a solution for allocating numbers for S-PCS but will only be used if a global solution cannot be implemented on time. Lawful interception is studied by groups of experts from the European Union in cooperation with experts from other regions. Principles and identification of issues to be studied for S-PCS have already been established but detailed conclusion have still to be adopted. Discussions between experts from Administrations and potential operators have been organised and results on this issue are expected in early 1997.

A list of potential conditions have been analysed in chapter three in order to establish which of these conditions are relevant to S-PCS and to which elements of the system they must be applied. ETO has also indicated the entities which need an authorisation and proposed a general description of the licensing procedure.

The licensing procedure proposed by ETO in accordance with work requirements 3 and 4, is presented in chapter four. The procedure is divided into four phases and individual licensing procedures will be used for each frequency band:

- 1) A first invitation to interested parties which aims at collecting information from potential operators for the second phase (i.e. frequency issues) and also for the third phase (i.e. selection process).

The results of this phase will be presented in a report carried out by ETO. Based on the findings of this report recommendations will be made to ERC and NRAs by a "Panel" to be set up by ERC and ECTRA on the two above-mentioned issues - frequency aspects and the selection process.

- 2) The second phase has to be conducted by ERC which could decide on how to split frequency bands when several incompatible technologies are used. The ERC's decision procedures will take at least six months to be adopted and implemented.
- 3) In some cases a selection process may be needed but ETO has not yet proposed a procedure - discussion must first take place within the Union, based on the proposal made by the Commission to the European Parliament and to the Council. Nevertheless, ETO has proposed a list of criteria for a potential selection process.
- 4) The last phase is the coordination procedure for the licensing of earth stations and services in countries where a licence is required. In addition to the procedures of this last phase, ETO has established a list of conditions for each element. An example of a coordinated procedure is ETO's One-Stop-Shopping procedure established for liberalised fixed services. It has not yet been proven necessary to establish a OSS for earth stations.

ETO has also proposed a time-schedule for the whole procedure which could be fully completed within twelve months, and a harmonisation process for the licensing regimes of terminal equipment that should be based on ETSI standards and should be undertaken

in application the Union Directives on terminal equipment. Unfortunately, standards will differ from region to region; it will therefore, not be possible to obtain the mutual recognition of terminal approval between regions. Discussions on these standards are currently being undertaken between Europe, Japan and the US under the FAMOUS programme in order to harmonise these standards as much as possible.

Even if it does not seem possible to impose any type-approved terminal in one region on the market of another region, it is suitable to reach agreement on the free use of terminals all around the world. This could be done by establishing mutual recognition of the licences granted to terminal equipment.

The licensing framework established by ETO is composed of European procedures, the aim of which is to coordinate the granting of national authorisations and decisions on frequency issues. For this reason, this framework requires ECTRA and ERC decisions for it to be implemented. This framework does not impose modifications on existing national licensing regulation on satellites, which remain valid for earth stations, terminal equipment and services. ETO also proposes the harmonisation of the licensing of terminal equipment that must be undertaken in order to facilitate the free circulation of handheld terminals. ITU frequency coordination procedures are also considered of great important for the S-PCS licensing.

CHAPTER 1

PRESENTATION OF THE STUDY

1.1 - ETO presentation.

The European Telecommunications Office (ETO) was created by the European Committee on Telecommunications Regulatory Affairs (ECTRA) which is one of the three committees of the CEPT¹ (Conférence Européenne des Postes et Télécommunications). The Memorandum of Understanding (MOU) on the establishment of ETO has been signed by 23 countries^{2,3} and out of these countries, 15 have also signed the arrangement on the One-Stop-Shopping on licensing, including 3 countries that are not members of the Union.

ETO has two functions, one, as mentioned before, concerned with licensing and the other with numbering. On the subject of licensing, ETO's function is to propose harmonised licensing conditions and procedures and to set up a One-Stop-Shopping procedure. The services concerned are liberalised services such as bearer data services, value added services, services not provided to the public and satellite services. On 9 September 1994, ETO signed a framework contract with the European Commission and following this signed 4 work orders on licensing with the Commission.

ETO is currently gathering information on licensing in order to build a database containing information on the licensing regimes of the CEPT countries having signed the arrangement on the One-Stop-Shopping procedure on licensing. ETO has also prepared an application form and a guide for licences in these countries.

1.2 - Presentation of the work order.

The services to be studied in the work order are Satellite Personal Communications Services (S-PCS) that can be provided by Low Earth Orbital satellites (LEOs) or other systems such as MEO's (medium orbital) or HEO's (high orbital) on a global level.

The purpose of the work order is to define harmonised conditions and procedures for the authorisation of these global services in order to grant licences that will be recognised throughout the whole European territory.

The justification of such a study lies in the fact that conditions for the authorisation of such telecommunications services differ from country to country. These different conditions may act as a barrier, preventing the implementation of an internal market for these global services, as well as creating a situation in which some countries will be left out of decision-making. Countries may be placed in a position where they have no say in the implementation of such services in their own territory.

The work requirements assigned to ETO are the following:

¹ The others are the ERC, the European Committee on Radio Communications and the CERP, the Comité Européen des Régulateurs Postaux.

² Countries signing the MOU and the arrangement on the One-Stop-Shopping : Belgium, Denmark, Finland, France, Germany, Hungary, Ireland, Italy, Luxembourg, Netherlands, Norway, Spain, Sweden, Switzerland and United-Kingdom

³ Countries signing only the MOU on the establishment of ETO: Austria, Bulgaria, Croatia, Cyprus, Czech Republic, Greece, Portugal, Slovak Republic.

- (1) to identify different service elements within the category of services covered by this work order that have to be distinguished between for the purpose of authorisations.
- (2) to co-ordinate the results with ERC/ERO whose objective is to establish harmonised conditions for the use of relevant frequency bands, and to integrate these results with the proposed harmonised conditions.
- (3) to propose harmonised licensing conditions as well as harmonised procedures for a first group of 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 an internal market, and to propose for such elements a procedure that would allow a common position to be established in Europe.

1.3 - Schedule and methodology.

Chapter 1 and parts of chapter 2 of this document were drawn up in June 1995 and were presented to other parties in order to obtain their comments, positions or demands. These parties are:

- Global consortia tendering for S-PCS
- Joint project team from ERC and ECTRA on mobile satellite systems.

In order to check the information on national situations and to discuss the work plan on further harmonisation, the first interim report was presented to the ECTRA Project Team on Mobile and to the Joint Project Team between ERC and ECTRA in June and July 1995 . This work plan was adopted by the ECTRA Project Team on Mobile in October and was sent to ECTRA members.

The draft second interim report was presented to the Joint Project Team between ERC and ECTRA, to the ECTRA Project Team on Mobile and to the Commission in December 1995 and January 1996. This was done in order to obtain their comments on the study, mainly on the harmonisation aspect of S-PCS, and to work out a final report.

The final version of the second interim report was sent to ECTRA members in mid January 1996 and, on 7 February, it was presented to the ECTRA plenary. The report was endorsed by the ECTRA which considered that it gave a presentation of the way in which Europe should handle this issue. This report has also be sent to ERC in order to obtain their comments on frequency aspects. In addition to the second interim report, the final report includes a summary and conclusions. The final report has been established after the ECTRA plenary and on 19 March 1996, it has been approved by the Mobile Project Team, on behalf of ECTRA, before its transmission to the Commission in early April.

CHAPTER 2

BACKGROUND: THE EXISTING SITUATION and DEFINITION.

S-PCS is a concept which involves global Personal Communication Service provided by means of satellite transmission. It is one of a number of new concepts within the general concept of PCS which also includes mobile communication such as GSM when established. The service will be provided on a global level through specific satellite networks such as Low Earth Orbital satellites (LEOs) or other systems such as MEO's (medium orbital) or HEO's (high orbital). Global communication services may also be provided by several satellite networks. Connection with PSTNs will be provided via a limited number of earth stations called "gateways". In order to allow the PSTN in each European country to be connected to S-PCS, earth stations need to be implemented in a small number of European countries, the number and the location of which will depend on the design of the system. The services offered to the public will be Voice Telephony, Data and Value Added Services.

Given that even in the most liberalised countries, telecommunication systems normally require an authorisation to be set up and provide services, these kind of single global satellite systems need to obtain authorisations in all countries around the world. This is a heavy obligation for any company or even for a consortium. In order for such systems to be developed, regulatory authorities must therefore establish a new regulatory framework.

Other global services provided by satellite transmission means already exist, but these services are provided by inter-governmental organisations (such as Inmarsat), and legal issues are laid down in international treaties. Such systems use Geostationary orbital satellite systems. New situation has occurred with the development of LEOs or MEOs wholly owned, controlled and operated by private parties or consortia. Therefore the aim of regulatory authorities and private companies to implement a world-wide satellite telecommunications system, in particular S-PCS, is an entirely new one.

ETO was established by ECTRA in order to draw up proposals concerning the harmonisation of licensing conditions and procedures within Europe. Furthermore, ITU and OECD have also undertaken work on this subject on a global level. The FCC (the US administration) grants licences for the US territory and licensees would like to obtain licences in all countries throughout the world. For this reason, licensing conditions and procedures need to be considered on a global level. On behalf of ECTRA and the European Commission, ETO intends to contribute to this purpose. Studies on frequency allocation will be carried out in co-operation with ERC/ERO. ERO has already carried out a study for the European Commission on S-PCS frequencies for the WRC (World Radio Conference) which was held in late 1995. Further studies are also being conducted by the ERC-RR working group.

Even though specific licensing procedures have not yet been established for these satellite systems in national regulations, general rules apply. Under these rules and licensing regimes for other services or networks, each licensing issue, such as "frequency", "authorisation of voice telephony", "installation of earth stations", and "free circulation of terminal handhelds", is considered separately. ETO has to study the relevancy of keeping these issues separate or to consider if the issue of the overall licensing scheme should be a collective one.

If the first option (each licensing element considered separately) is adopted, it will be necessary to implement a co-ordination procedure whereby a common European position concerning these S-PCS systems may be obtained.

If the latter option (an overall licensing scheme) is adopted, it will probably be necessary to create a general licence for the whole system (infrastructure and basic services) with authorisation for items such as frequency licences, gateway licences, terminal equipment and supplementary service authorisations attached.

2.1 - Definition of S-PCS

2.1.1 - Existing definitions of Satellite Personal Communication Services and other Mobile Satellite Services.

There are very few definitions available on the subject of S-PCS. In the Commission's Mobile Green Paper, PCS is defined as "*a generic term for services which provide person to person calling, independent of location, terminal used, the means of transmission (wired or wireless) and/or the choice of technology*". Satellite PCS may therefore be considered as a sub-set of PCS in which the means of transmission is satellite links only. It must also be considered as a first step in reaching full PCS. Nevertheless, the concept of S-PCS seems to contradict somewhat the definition of PCS which stresses that the service has to be independent of the means of transmission.

The Commission's Mobile Green Paper has also defined S-PCS as "*Radiocommunication-based services, where there is a direct communication from handheld equipment to satellites. Even though potentially routed through terrestrial-based infrastructure for a portion of specific connections.*" Nevertheless several comments have been received, indicating that this Green Paper defines S-PCS too narrowly. The European Commission would like that a new definition, based on elements provided by the KPMG study, be proposed by ETO (see chapter 2.1.2, proposal 1 page 12).

In ERC, the RR⁴ working group has proposed another definition: "*An S-PCS network is a network that provides personal mobile communication services to individual users with handheld terminals via satellite system.*"

The PCS concept contains mobile systems which include terrestrial and in some cases satellite means of transmission. These future systems are called Mobile Satellite Services (MSS)⁵, FPLMTS (also called UMTS). In order to decrease the cost of terminals and to offer complementary services to the users en route to full PCS, some terminal equipment may, in the future, be capable of accepting several systems like GSM and S-PCS.

These other satellite services, in particular mobile satellite services, will be studied later in a second work order for the Commission that ETO will sign on behalf of ECTRA.

2.1.2 - New definition of S-PCS.

The definition of S-PCS should include elements from the following definitions:

-the definition provided by the Commission in its Green Paper on Mobile: "*Radiocommunication-based services, where there is a direct communication from handheld equipment to satellites. Even though potentially routed through terrestrial-based infrastructure for a portion of specific connections.*"

⁴Radiocommunication Regulatory

⁵ The term "Mobile Satellite Services" (MSS) comes from the ITU.

-the Mobile Project Team proposes the following amendments to the above definition: *"Radiocommunication-based services, where there is a direct communication from equipment, including handheld terminals, to satellites, with global coverage."*

This definition is based on the assumption that communication will not only be from handheld terminals to satellites, but also from mounted vehicles or fixed equipment such as call boxes.

-the KPMG study on Satellite Personal Communications made for the Commission, which proposed the following definition of satellite PCN: *"A satellite PCN (Personal Communications Network) is the satellite specific elements of a network suitable for provision, operation and support of a mobile or personal communications services."* KPMG considers that this definition includes applications other than telecommunications, such as broadcasting, maritime and aeronautical services. It also applies to connection with public networks. This study emphasises the fact that S-PCS has to be user-oriented; this means that the service has to be provided to users and/or terminals whether static or moving.

-The Joint Project-team ERC/ECTRA on Mobile Satellite Services established the Temporary document 7 which proposes the following definition: *"S-PCS Systems belonging to Mobile Satellite Services (MSS), as defined by the Radio Regulations article 1, providing, but not restricted to telecommunication services, between their own users and users of terrestrial telecommunications operators and/or between their own users, through satellites and earth stations and personal or collective terminal equipment."*

All the comments received indicate that S-PCS is a specific system with a wide range of possible transmission means, services and terminal equipment. As a result of this, a definition of S-PCS has to reach a balance between being too broad -which would therefore encompass a lot of telecommunications systems for which definitions and licensing regimes already exist- and being too restrictive, which would limit the potential possibilities of the system. The elements that have to be taken into account in the definition of S-PCS are the following:

- a)-the service is public and end-user oriented whatever the location or the terminal used by the user. "Public service" means that the service is offered to everybody wishing to subscribe to the services involved and this term can be opposed to "private service" which means that the service is offered to people belonging to a defined group of persons. Public service does not automatically include the provision of Universal service which impose that the service must be offered at a reasonable price;
- b)-the services concerned are mainly telecommunications services such as voice telephony and data services but can also be positioning, emergency and distress services, broadcasting, maritime and aeronautical services;
- c)-communication means are mainly based on satellite radio links but terrestrial links can also be used via connections to public networks;
- d)-services may be provided to handheld terminal equipment but they may also be accessible via fixed equipment such as call boxes, and must be subject to national licensing regimes (see paragraph 3.3.4);
- e)-services are provided globally or at least throughout a large part of the world. It must be noted that 100% coverage is not possible; nevertheless it seems that a definition of global coverage is not necessary for the purpose of the licensing regime.

The Green Paper definition of S-PCS, as amended by the MPT seems to cover almost all the above elements, and appears to be flexible and easy to understand. However the terms "public" and "to end-users" have to be introduced to stress that services have to be end-user-oriented and provided to the public -i.e. anybody - (item a).

The term "Radiocommunications services" includes telecommunications services and other services mentioned by KPMG and can therefore be kept as it is (item b). Even though the possibility of using terrestrial communication means (item "c"), is not mentioned in the definition below, this is not to say that it is excluded.

If additional information is provided through transmission means, it might become difficult to take into account all of the means necessary and their evolution. Item "d" is clearly mentioned in this definition and no further modifications are needed. Despite the fact that item "e" on global coverage is an important issue of S-PCS, its presence in the definition would exclude regional systems, (i.e. European systems) and lead to unnecessary complications. It is therefore proposed that this item be removed from the definition of S-PCS and that it be used instead in the evaluation of the efficient use of frequencies.

The following definition is proposed for the purpose of the report:

Proposal 1: definition.

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

It should be noted that the above definition does not include VSAT and SNG for the following reasons: they are not public services, VSAT refers to a type of equipment which is usually fixed or stationary and SNG refers to a type of service that cannot be provided on handheld terminals.

2.2 - The Union's policy on satellite.

The Union policy on satellites is based on six main texts dealing specifically with satellites, which are presented below. On 8 November 1994 the satellite sector was fully liberalised in the European Union and European Economic Area countries except for countries in which terrestrial networks are not yet sufficiently developed - for these countries application of the Directive has been postponed until 1 January 1996. NRAs have to enforce licensing regimes for satellites (including S-PCS) and inform the European Commission of their actions by 8 August 1995.

2.2.1-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.

2.2.2-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 judgements of the European Court on the definition of "special rights"⁶.

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 station, liberalised services and Voice Telephony.

The Directive also states that licensing or declaration obligations will only be justified in order to ensure compliance with essential requirements, subject to the proportionality principle. This rule also applies to S-PCS.

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.

The Directive provides definitions on "satellite earth station network", "satellite network services", "satellite communications services" and "satellite services". In addition satellite services are excluded from the telecommunication services as redefined in this Directive.

The Directive adds a fifth essential requirement for satellites 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 amended article 2 of the Directive 90/388/EEC states that: *"Members States shall withdraw all those measures which grant: (a) exclusive rights for the supply of telecommunications services otherwise than Voice Telephony "*.

After 1st January 1996, all these services will be allowed subject to the granting of a licence in all the Union and EEA countries. This rule also applies for S-PCS.

2.2.3-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.

⁶Case 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.

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

2.2.4 - 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.

2.2.5 - Proposal for a European Parliament and Council Decision on an action at a European level in the field of satellite personal communication services in the European Union.

The proposal has been completed with the publication of a Call for information in the Official Journal (28-12-95) in order to obtain information from any entity interested in, or affected by the provision of S-PCS in the European Union. Information received will assist the Community in defining the scope and modalities of a selection and authorisation process with regard to S-PCS. The study undertaken by ETO on behalf of ECTRA provides the Community with proposals on authorisation conditions and procedures, which complete information obtained from the above-mentioned Call.

The proposal is currently under discussion within the European Union Council and could be amended. Its purpose, as it is in the original version is to establish an action at a Union level for a three year period by means of co-ordinated action between NRAs. This draft decision is under discussion within the Council and the European Parliament. Article 2 defines four objectives: i) the selection of S-PCS space segment operators, ii) the adoption of common conditions to be attached to authorisations granted to these operators, iii) harmonisation of conditions for providers of S-PCS and gateway operators and iv) the establishment of a dialogue between the European Union and third countries.

Articles 4 and 5 deal with the selection process for space segment operators, its establishment with co-operation from NRAs (art 4) and the decision-making procedure (art 5). Article 5 includes a call for declaration of interests from potential S-PCS operators that could be published within six months of the Decision being adopted. The Call shall set out the criteria for the selection process.

In order to assist the adoption of common and harmonised criteria (selection process) and conditions (authorisation process), the Commission intends to ask ETSI, ECTRA and ERC to study the necessary technical criteria and conditions (art 6 and 7). Work orders have already been contracted with these organisations, the results of which have been or will very soon be delivered. The Decision also proposes setting up an advisory and regulatory Committee (art 8 and 9). The regulatory matter involved is the selection of space segment operators as specified in art 5.

Article 10 deals with international aspects. The principle of Community action will aim at ensuring effective and comparable access for Community organisations to the markets in these third countries.

2.2.6 - Proposal for a European Parliament and Council Directive on a common framework for general authorisation and individual licences in the field of telecommunications services (COM (95) 545).

The proposed directive will lay down a common framework for national authorisation regimes. This draft directive is under discussion within the Council and the European Parliament. The most important features will be.

- 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 subject 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.

2.3 - S-PCS licensing regimes.

In this section, existing national regulations and Union policy are analysed in order to see how S-PCS may obtain the required authorisations.

In order to be in accordance with the national situation in Europe, the licensing scope has to be divided into 4 issues that may include several sub-categories. In a lot of cases, frequency matters, which have a separate licensing regime, are sub-categories. These 4 issues are:

- The system which includes space segment and the provision of telecommunication services,
- The earth station,
- Interconnection of the S-PCS system with Public Networks,
- Terminal equipment.

These are dealt with in detail below, with information on the licensing regimes of some countries also given. In order to obtain more information on this subject a questionnaire, attached in annex, has been sent to all CEPT countries.

The 4 above-mentioned issues also correspond to components of the system which are:

- satellites with up and down links with both terminal equipment and earth stations,
- earth stations including two functions: i) the control and management of satellite communications, ii) interconnection with PSTN or other public networks,
- terminal equipment.

Frequency issues included in the report have been prepared in co-operation with ERO which has published the report it carried out for the Commission on S-PCS frequencies.

2.3.1 - Regimes of systems.

In this report, "system" refers to satellite infrastructure, basic services (in general Voice Telephony) and allocated frequency bands (up and down-links from satellite to terminal equipment, mobile phone and earth stations, as well as radio-link between satellites).

For the purpose of the licensing regime of systems it is necessary to divide this issue into 2 sub-categories, the first one dealing with space segment, including both satellite orbits and feeder links, and the second one dealing with service provision. With regard to space segment, it seems that all CEPT countries require ITU-rules only and that no extra national licensing procedures are added. In addition it should be noted that ITU rules on frequency also require that satellite orbits and feeder links be considered together even if registration involves frequency only. (see annex 13 on ITU procedures).

a) Space Segment.

This section deals with frequency allocation including ITU procedures for satellite links.

Frequency use by satellites is subject to ITU-RR. The consultancies organised by ERO and ETO on this subject show that none of the CEPT countries require a licence for satellite infrastructure, they recognise the results of the ITU frequency coordination procedure that must be satisfactorily accomplished. The ITU coordination procedure is considered as an essential factor in the establishment of S-PCS systems, and details on this subject are provided in annex 13.

The situation in countries responsible for notification and coordination may differ substantially. Only one country in the world is concerned by such procedures dealing with space stations and may be located out of Europe. No harmonisation is therefore needed and such a specific situation is not studied neither considered in the report.

Satellites communicate with both earth stations and other types of terminal equipment. Frequency assignment and coordination may be carried out for earth stations without any difficulty for almost all the countries and no problems should arise if suitable locations are chosen. The main problem with regard to frequency issues comes from the assignment and coordination of frequency spectrum for radio-links between satellites and terminal equipment.

The problem highlighted by some NRAs is that ITU procedures are not efficient enough to discriminate between the so-called "Paper Satellites" and effective satellites. This problem is not specific to S-PCS and no solution can be adopted before the next ITU plenipotentiary assembly in 1998. In consequence NRAs must apply the ITU rules as they stand. Discrimination between "paper satellites" and effective satellites will be one of the aims of the selection process presented in section 4.3. Another problem could arise due to important delays in ITU frequency coordination procedures due to the fact that ITU must administrate an increasing number of procedures involving more and more countries.

Allocation of frequency bands is an important element to be taken into account when considering systems. Three kinds of frequency bands have to be considered, up and down links between the satellite and mobile phone, up and down links between the satellite and earth stations, and in some cases radio links between satellites. Scarcity of frequency bands is a question which refer only to up and down links between satellites and terminal equipment.

Bands are allocated for the provision of a service like S-PCS through ITU-WRC procedures. Within each band countries are authorised to allocate part of it to individual companies subject to the coordination of frequency bands between companies having obtained bands in the same zone. Coordination procedures are organised within ITU. It is evident that a coordinated decision and perhaps even a selection process are required for global systems. This issue has been developed by ERO in its final report on S-PCS.

ERO stresses that "this process is necessary because of the high number of proposed systems and the limited amount of spectrum available". It should be noted that in the US, the FCC have not really organised a selection procedure when it granted licences to three consortia. Nevertheless FCC indicated that if mutual exclusivity could not be resolved, it would consider awarding licenses by auction, rather than by lottery or comparative hearing. The FCC convened a "negotiated rule-making committee" comprised of representatives from different consortia. The results of their negotiations were incorporated into the FCC's "big LEO" report

and order, October 1994. The situation in Europe might differ from the US situation if additional consortia appear which wish to provide services throughout Europe.

b) Service Provision.

The provision of basic services, in particular Voice Telephony to the public, may be subject to the granting of a licence in accordance with EC policy on Voice Telephony liberalisation. The situation is rather unclear due to the fact that the service could be offered without any physical network devices having to be installed on the territory of the country in question. In this case, the only physically visible devices would be handheld terminals.

In consequence, it is necessary to consider both countries in which earth stations have been installed and countries where no fixed devices exist.

In the first case -countries where an earth station has been installed- the licence granted to the company operating the earth station normally, in accordance with EU legislation, includes interconnection issues and must therefore be considered as authorisation to provide the service. When the licence granted to the earth station operator does not include service provision rules it means that either provision is authorised for as long as general telecommunications law is respected, or individual licences are required from service providers (which are not necessarily the earth station operators). Where no individual licences are required, service providers do not need licence to conduct business, e.g. GSM service providers. In accordance with the article 90 directive 94/46/EC liberalising satellite services, compliance with essential requirements, in proportion to the objectives pursued, will be achieved essentially through the authorisations which may be necessary, within certain limits, for the provision of the services concerned.

In the second case (countries where no fixed devices exist) the regulatory framework is rather unclear. In some countries the need to obtain a general licence for terminal equipment seems to be the only requirement, but in other countries a service provider may require a licence.

In conclusion it can be established that a licence is required in almost all of the CEPT countries. This licence may differ depending on the design of the system. The licence can be a licence granted to the earth station operator (see § 2.3.3), a general licence for terminal equipment (see § 2.3.4) or a licence granted to a service provider.

For frequency assignment, arguments that can be used to legally refuse a licence, in accordance with EU legislation in EU countries are:

- 1- the bypassing of international Voice Telephony provided by Operators, even if this is generally considered as a purely theoretical risk, and
- 2- access to a third market by a company established in the country in question. This last reason is also referred to as "reciprocity".

2.3.2 - Regimes of ground/earth stations.

Ground stations require authorisations in almost all European countries and these authorisations have to be granted by the NRA of the country in which the ground station is to be installed in accordance with EU legislation in EU countries. Authorisation is related to two functions that must be considered separately. The first function, dealt with in this paragraph, is communication with the satellite in order to control the system. The second, considered in paragraph 2.3.3 below, is connection with the PSTN in one or more countries.

This authorisation, dealing with control function can be divided into 2 subjects:

- a) The bypassing of international Voice Telephony (in general provided by Public Operators). This subject has already been mentioned in paragraph 2.3.1. However, when authorisation of the ground station has to be considered by the NRA involved, it can be seriously checked that such a bypass can be avoided, in particular if the control function has been correctly designed to provide Voice Telephony in authorised countries only. As

a result of this the authorisation of a ground station by an NRA must take into account the situation in several other countries when authorising the ground station.

b)The allocation of frequency bands for down and up links between satellites and the ground stations is considered as a national issue subject to ITU allocation and coordination procedure. ERO reaches the same conclusion in its report for the Commission. In addition to the situation on frequency for terminal equipment, it has to be noted that WRC 95 has allocated new frequency bands for links between earth stations and satellites which involve that no lack of frequencies remains for these radio links.

2.3.3 - Interconnection with Public Networks.

One of the reasons for which S-PCS is being promoted is that it is a means of providing services where there is little telecommunications infrastructures, or where conventional terrestrial networks would be too expensive to implement. In order to allow telecommunication between these areas and areas where other means exist, S-PCS must be interconnected with the PSTN. Other interconnections must also be considered for other public networks such as mobile networks and ISDN. Connection between S-PCS and GSM may be considered either via a dual mode terminal or via a connection between a gateway and a GSM switch. Dual mode terminals are studied in § 2.3.4.

The European Commission has adopted a Proposal for a European Parliament and Council Directive on Interconnection in Telecommunications ensuring Universal services and interoperability through the application of the principles of Open Network Provision (ONP). This future directive will provide a framework for interconnection among networks, including S-PCS.

In ECTRA, interconnection issues are studied by the APRII PT (Accounting Principle and Regulatory Interconnection Issues), which, at the ECTRA plenary on 17-18 October 1995, adopted a report on interconnection. As far as we can ascertain, at this stage it seems that there are no specific rules for S-PCS. Nevertheless, rules will be needed in the future and further study will therefore be needed as this subject to judge whether general rules are relevant for these satellite systems.

General interconnection between networks is an issue for which it is recognised that bilateral agreements between operators is the most suitable procedure. NRAs only intervene when the 2 parties involved cannot reach an agreement or if one of the parties complain about how the final agreement has been established. This position is also supported by the EC in the above-mentioned draft directive.

This rule is probably applicable to S-PCS in almost all European countries. It would therefore appear that interconnection is a national responsibility. Nevertheless it has to be mentioned that interconnection may be considered as either a right or a possibility, depending on the licensing rules in question.

Judging by the Commission's proposal on interconnection as well as by the draft directive on full competition based on article 90, there is no doubt about the desirability of allowing interconnection between S-PCS and public networks.

2.3.4 - Regimes of terminal equipment.

It is necessary to distinguish between terminal type approval and terminal licensing. In some cases both may be required. Type approval gives the licensee the right to sell terminals and guarantees the free circulation of these terminals within the EEA territory. The licence gives the licensee the right to use the terminal.

In accordance with European Union Directives 91/263/EEC and 93/97/EEC, terminal equipment connected to the public network has to be granted type approval which covers both Essential Requirements and EMC (Electro Magnetic Compatibility). S-PCS handhelds, however, are not directly connected to the PSTN, they interwork with public networks via gateways.

Since it was decided that S-PCS terminal equipment should be subject to these Directives, work has commenced on the production of standards (TBRs) for this equipment. ACTE will adopt a TRAC document that will establish rules on the approval of terminal equipment.

The Commission is currently engaged in a consultation process concerning the extension of Directive 91/263/EEC, in particular to cover radio equipment. There are a number of important issues regarding this subject which will be studied by the ECTRA PT on Mobile and ERC FM group. Elements of the Directive which relate specifically to S-PCS will be taken into account in this study.

A set of ETSI standards is expected in late 1997 that will fit with the first entry onto the market of these terminals, scheduled for 1998. Further tests have to be carried out and a laboratory has also to be accredited for this purpose. NRAs have to ensure that the provision of terminals is conducted on an open, fair and non-discriminatory market. NRAs need to obtain guarantees on the availability of standards, non-discriminatory type approval procedures and fair IPR rules.

In order to use terminals one must obtain a licence which is granted by NRAs. Three categories of licence exist, the first category is "free regime" where no licence is required, the second is "general licence" which applies to terminals such as GSM and the third is "individual licence", granted individually to each terminal. In theory, this third category needs Mutual Recognition and a circulation card regime. Nevertheless, when NRAs authorise the provision of S-PCS in their own country they are obliged to ensure the free circulation of corresponding terminals.

2.4 - The US situation.

Licences in the USA have a very broad scope. In February 1994 the FCC published a "Notice of Proposed Rule-Making (NPRM)". This document presents proposals on the US licensing scheme, which include:

- the launching and building of satellites,
- the allocation of frequency bands,
- orbital considerations,
- coverage of the service throughout the world and in US territory,
- implementation milestones on systems and services,
- the implementation of ground stations,
- the approval of handheld terminals,
- the funding of systems and shareholder ownership.

In mid 1994, US authorities organised a public consultation process and published a report on this subject. At the same time they adopted an Order which is based on the NPRM.

On 31 January 1995 the FCC granted licences to 3 consortia; Motorola (Iridium), Loral (Globalstar) and TRW (Odyssey). The decision on whether to grant licences to two other consortia, Constellation Communication and Mobile Communications Holding (Ellipso) has been deferred. The licensing issue in the US has not yet been resolved.

Applicants for licences (3+2) have been given until 31 March 1996 to reach an agreement on the sharing of certain frequency bands as well as on the technology they plan to use (TDMA, CDMA). The FCC also intends to organise a "Final Financial Showing" by this date in order to fully check that the situation comply with licensing conditions. It should be noted that licensing procedures may differ depending on the ability to assign frequency bands to all applicants. If it is possible to accommodate all applicants, licences can be granted once all the conditions of the licence are complied with. If this is not the case, other procedures have to be set up in order to select licensees. These procedures might include comparative hearings, lotteries and auctions.

A solution which accommodates all applicants will be difficult to find for two reasons: limited frequency resources and incompatible transmission systems. The 2 transmission systems are CDMA which allows the same band to be shared among several systems, and FDMA/TDMA where a specific band is allocated to one system only. The FCC evaluates that 4 CDMA and 2 FDMA/TDMA systems can be authorised to transmit in the band designated by the WRC 92 for mobile satellite services.

Global coverage is required for these systems. They have to be capable of serving locations as far north as 70 ° latitude and as far south as 55° latitude. This will allow coverage to populated areas.

Continuous coverage of the 50 States is also required.

2.5 - Fees and Numbering.

It may be necessary to pay a fee in order to be granted a licence or assigned a frequency. In some countries payment of fees is a pre-condition which must be fulfilled before the licence is granted.

Numbering of S-PCS is an important issue that must be considered within general discussions on Numbering, in particular at European and global levels. At the moment at least 3 possibilities exist:

- The use of existing national numbering resources,
- A European numbering possibility could be studied after ECTRA decides on a European Telecommunications Numbering Strategy,
- The allocation by ITU of a Country Code for global services or global service providers.

2.5.1 - Fees.

In order to study this issue, a second questionnaire has been sent to NRAs in order to complete the first questionnaire mentioned at the beginning of chapter 2.3. NRAs have been asked to distinguish between:

- i) fees to be paid in advance of the application form,
- ii) fees to be paid once the authorisation has been granted and
- iii) annual fees.

NRAs have also been asked to describe the parameters used to calculate fees i.e. the turnover, the assigned frequency bands of the system.

In almost all CEPT countries, no specific rules have been established for S-PCS and details will be provided in the report on "satellites services other than S-PCS" that ETO will carry out for the European Commission in Autumn 1996. Information received concerned earth station, GSM terminal equipment or Inmarsat terminals. Two categories of fees have been identified: fees required for the licensing of services and for the use of radio spectrum. In some countries both are required. Fees to be paid in advance are not required in all countries, but all countries do require annual fees.

Calculations can, in certain cases, be based on administrative costs, which include the cost of implementing the coordination procedure. In general however, fees depend on the bandwidth of the spectrum assigned. One country also mentioned that fees depend on gross income. Other countries indicated that fees are defined case by case.

2.5.2 - Numbering.

Three possible solutions have been identified by ETO. They are briefly presented below and will be studied in more detail in co-operation with potential S-PCS providers and ECTRA. If other possible solutions appear during the course of this study they too will be considered.

a) National solution.

This is the only solution available at the moment. If S-PCS are used mainly for international calls, the use of national numbers will introduce ineffective routing of calls with tromboning effects. This will reduce the potential for competitively priced services. The other disadvantage is that S-PCS operators depend on fixed network operators for their tariffs and the competitiveness of their offer.

b) European solution.

A European Numbering scheme was decided upon by ECTRA in October 1995 and may be implemented in 1997 (see annex 6). Allocation of European numbers could therefore be envisaged for late 1997. An action plan for an ETNS is under discussion in the ECTRA Project Team on Numbering and in the European Numbering Forum. In addition to the proposal to use Country Code (CC) 388 as the ETNS, ETSI and ETO have proposed alternative ways of creating an ETNS by using existing national resources. This alternative has not been analysed by potential S-PCS operators and will only be considered if a global solution cannot be achieved in time by ITU.

c) Global solution.

The ITU study group 2 is currently studying global numbering solutions for Global Mobile Satellite Systems (GMSS). At present 2 possibilities exist. The first is the allocation of a single CC for GMSS. This CC has to be shared by all GMSS operators. The second possibility is the allocation of a CC to each GMSS operator. It is difficult to predict when such a global solution might be available. It appears that if the global solution is adopted, GMSS operators consider best to have a 3 digit code for each operator. Nevertheless, NRAs will prefer to allocate only one CC for GMSS due to the lack of available CCs and the relatively small number of users of GMSS compared with those for fixed services.

GMSS is a more technology-related concept whereas S-PCS is a service concept. The numbering of GMSS and S-PCS will be studied by the ECTRA Project Team on Numbering in order to analyse different possibilities and to establish proposals. So far, ITU-T studies have focused on GMSS numbering.

. This issue of GMSS numbering was studied by ITU working party 1 of study group 2 in San Francisco in January 1996. In San Francisco a principle to assign to each GMSS operator a 3-digit CC followed by up to two "1-digit" identifiers was favoured by a majority of participants. However, GMSS operators had some concerns about this. In June 1996 the SG2 will give an answer to GMSS operators

The earliest possible date by which a decision can be obtained and numbers allocated to GMSS is mid 1997. If a global solution is delayed, national or European solutions could be considered. Both solutions will be available for European users and service providers.

2.6 - Lawful interception.

The interception of telecommunications is regulated at 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 (see annex 8). Such proposals are expected in late 1996.

The following preliminary principles have been carried out:

- National authorities should be able to intercept any satellite call generated from its 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 discussions with potential operators involved. Results will not be available before 1997.

CHAPTER 3

S-PCS LICENSING PRESENTATION

The aim of this chapter is to analyse conditions and procedures to be taken into account in licensing regimes and to give information about the entities which must be granted licences. Several ways might be considered for the licensing regime, but the report presents only one solution which includes proposals for a set of licensing conditions and for different phases of the licensing procedure. The aim of chapter 4 is to present the harmonised licensing framework in detail.

3.1 - Conditions of the proposed licensing regime.

The aim of this paragraph is to present and analyse the conditions to be taken into account in the S-PCS licensing regime. For each of the relevant conditions it will be stated whether harmonisation is possible and necessary and whether these conditions have to be really considered as pre-conditions (conditions to be considered only when applying), operating conditions (for which an authorisation can be withdrawn) or information (to be provided when applying or for all subscribers). Reasons will be given in cases where no harmonisation is needed.

The list of licensing conditions has been established with elements from the US regime, satellite licensing regime in European countries and general conditions required for telecommunications services. All elements will be analysed to see how relevant they are to S-PCS and how they have to be considered with regard to S-PCS..

Elements will be divided into 4 categories: Pre-conditions, Conditions, Information and Duration. Pre-conditions are conditions which must be fulfilled by the Service Provider before being allowed to apply for a licence. Conditions must always be fulfilled by the Service Providers when providing the services concerned and if not the licence can be withdrawn by the NRA. It should be noted that the essential requirements listed in Directive 94/46/CEE are the only limitations acceptable in a licensing procedure.

a) Global coverage, including CEPT countries;

Coverage is an important issue for S-PCS intending to provide global services and is of great importance to users; it seems therefore logical to take it into account in S-PCS licensing conditions. In addition, global coverage has to be considered in relation with the efficient use of frequency spectrum, for this reason it could be considered an element of this essential requirement of the EC directives. The FCC has already introduced coverage conditions in its licensing regime. Some European countries also impose coverage parameters in their licences for public services, but NRAs can only impose coverage of their own territory. It is therefore proposed that "global coverage" should be considered as a condition to be included in European procedures and as an element of the licensing conditions with regard to frequency. In this case, this issue deals directly with the system. In addition information on it is also required from S-PCS applicants in order to determine the countries involved in the licensing of the system and its elements.

It appears that global coverage must be considered as a condition to be included in European licensing procedures as well as an element of the efficient use of frequency.

b) Spectrum assignment and spectrum efficiency;

S-PCS applications could be implemented in several frequency bands allocated to Mobile Satellite Services under Radio Regulation. Nevertheless, at the moment, information on the situation are only available for the band 1.6/2.4 Ghz. For this reason, this section deals only with this band and further studies are needed on other bands.

Limited frequency resources limits the number of licensees and for this reason, a selection process for applicants may be required. The issue of selection process is developed in paragraph 4.3.

The decision by the FCC to assign frequency bands in the US territory to 3 systems, even if it is conditional and under certain conditions, acts as a constraint for other regulatory authorities since each of these systems need to obtain the same frequency band all around the world for technical and economical reasons.

Studies have been undertaken throughout Europe by ERC to see if the frequency bands assigned to MSS are available for S-PCS. When assigning frequencies, NRAs have to ensure the efficient use of this scarce resource. Once again, the US experience (see 2.4.2) has shown that spectrum efficiency also depends on the technology chosen for uplinking transmission. In the 1.6/2.4 GHz MSS bands, one of these (TDMA) requires a specific band and the other (CDMA) allows the sharing of the band among several service providers. In the 2 GHz bands it seems that it is not necessary to divide the bands between incompatible transmission technologies.

An ERC decision on which bands to reserve for S-PCS and the dividing of the assigned band between the 2 transmission technologies (CDMA/TDMA) may be expected in 97. This decision will take into account the results of the Invitation for interests proposed in paragraph 4.1. The conclusion of which could also be that there is no need to divide the band concerned.

Europe has therefore two possibilities for granting licences to systems complying with European licensing conditions. It can:

- i) assign the same frequency bands as those assigned by the FCC,
- ii) choose another solution which may establish new limits between the 2 transmission technologies involved and may assign other frequency bands to each licensee.

The assignment of the same frequency bands as those that may be assigned by the FCC has to be given first consideration. The second possibility mentioned above will only be taken into account if the FCC solution cannot be implemented in Europe.

The licensee for frequency assignment will be the earth station operator, service providers (providing services and also terminal equipment to their subscribers) and, may be, the S-PCS consortia.

It appears that:

- **frequency reservation for S-PCS and the division of the bands between 2 transmission systems, if necessary, will be co-ordinated through ERC decisions.**
- the FCC solution should be taken into account.**
- Decisions will fully take into account the results of the invitation for interests described in 4.1.**
- The need for a selection process has not been entirely established but cannot be excluded.**
- Spectrum efficiency is a parameter of spectrum assignment to each system.**

c) World-wide shareholding dealing with reciprocity;

Some countries impose limits on the shareholding of satellite systems. These constraints will be difficult to maintain when a global system is implemented. The reasons for this are that many systems are raising capital investments in international markets and that S-PCS consortia need to involve regional companies in order to reach agreement with these companies for providing services in the region where these companies are located. In countries where such limits on the shareholding exist, exemptions from NRAs could require guarantees concerning the possibility to enter into consortia.

The question of reciprocity is currently under discussion within the WTO. At the moment it remains a national issue that has to be negotiated between states.

This element of the S-PCS licensing procedure will not be relevant for almost all the NRAs involved since they will have to grant licences to regional service providers, probably be owned by European companies or consortia. Only a few countries will have to grant licences to earth station operators and even when this is the case, the operator may well have a majority European shareholding.

The openness of ownership is suitable for such systems but the detailed conditions to be introduced in the licensing regime could be very controversial. It appears therefore that ownership should not be made a licensing condition of the system.

d) Quality of service;

This depends on several factors, such as the number and position of satellites in a defined area, frequency allocation and terminal equipment. In addition to these issues, the measuring of quality is a real problem.

In sectors where competition exists and it is possible to choose the best offer with regard to tariffs and quality of service, quality of service is the user's main concern.

e) GSM dual mode terminal provision;

S-PCS is a mobile service like GSM (including DCS 1800). In Europe, its aim is to establish mobile services in areas where GSM is not provided. Interworking is therefore needed. In the case of S-PCS consortia discriminating against GSM service providers or GSM terminal manufacturers wanting to obtain the right to provide S-PCS services or multimode terminals, competition law will be enforced, whatever the licensing regime involved.

ERO, in its report on S-PCS, regards the interworking capability between S-PCS networks and GSM networks to the extent that it will facilitate an efficient production and operation of multimode terminals as an important factor for S-PCS in Europe."

The ERO report also stresses that "since potential operators are equally interested in FPLMTS/UMTS (future generations), there is a good chance that, via the satellite component of FPLMTS/UMTS, the success of GSM and DECT could be carried into third generation mobiles. This is so because there will most likely be an evolution towards third generation mobile and not a revolution".

Nevertheless the possibility for the manufacturer to produce multimode terminal equipment may be obtained through the availability of standards. This item is developed in paragraph i).

GSM interworking is an important issue. It will be subject to commercial arrangements and must be in accordance with competition rules.

f) Proof of financial status;

This may be required in order to avoid "paper satellite systems", or to obtain guarantees on the effective use of the frequencies. These 2 issues seem to be relevant but it has to be seen if there is any legal basis for them. A fixed degree of self finance may also be considered as a condition of operating.

A procedure could be organised whereby S-PCS service providers and/or operators could give to NRAs proof of financial status at certain stage: i.e. in compliance with appropriate milestones of satellites and contracts for satellite launch placement, successful satellite launch and satellite system deployment. These elements could also be provided as part of an ongoing review process. Taking into account the position of NRAs, it does not seem appropriate to propose such an extra group of conditions.

Proof of financial status is an important element of system licensing and should therefore be considered as a pre-condition.

g) Interconnection with other networks;

S-PCS needs to be connected to fixed public networks and probably also to mobile networks. These connections should be based on the result of private agreements among operators. When connection is made with one network, connection is automatically made with all the others which are interconnected with it. For economic and technical reasons several connections are needed within Europe, but not in all countries. Connection will be made either in countries where earth stations are to be implemented or in any other country through a link used specifically for this purpose. This issue has therefore to be considered in conjunction with paragraph 3.2.2 on earth stations.

The main point to be assessed is whether it is acceptable for a consortium to give a service provider or an operator exclusive rights on a specific area due to the amount it invests in the consortium.

This issue must be considered in connection with the future European Directive on interconnection. According to this Directive, interconnection must be regulated and conflicts must be subject to arbitration procedures. Such a regulation should be considered separately from the licensing regulation.

Interconnection does not have to be included in S-PCS licensing conditions but information on this subject is needed for the licensing of systems. Interconnection will be regulated through specific European Directives for EU countries and through national law for non EU countries.

h) The possibility of 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 2.6. The reason it is mentioned in this chapter is because a system designer needs to know the exact requirements of the legal entities in order to design a system allowing interception. If these requirements are known too late the investments needed to implement interception means will increase substantially. NRAs are responsible for verifying that legal interception is possible when granting a licence, legal interception must therefore be considered as a condition of service provision and failure to comply with this condition could lead to the withdrawal of an authorisation.

Lawful interception is a relevant issue and requirements on this issue must be known before the licensing process commences.

i) Terminal standards.

Under some national licensing regimes for satellite services, the availability of terminal standards is considered as a licensing condition. These standards have to be published and made available to the public on time in order to guarantee fair competition among terminal manufacturers. The need to reduce the cost of these terminals will oblige manufacturers to develop multimode terminals accepting GSM and S-PCS services.

The availability of terminal standards is relevant to the S-PCS licensing procedure.

j) Status of the operators.

The FCC has considered this point due to the existence of specific rules for "common carriers" in the US and concluded that S-PCS should not be considered for common carriers. In Europe such rules do not exist and in consequence this issue is not relevant in Europe. Nevertheless some operators have public obligations regarding their licences. This issue is analysed in paragraph "l)" below.

The status of operators with regard to S-PCS licensing in Europe is not relevant.

k) Duration of the licence.

It is suitable to establish a common position with regard to the duration of all licensing elements of the system within Europe. Discussion on this subject should take the ten year period adopted by the FCC as a starting point. It is also suggested that a review mechanism or procedure could be implemented so that licences could be assessed, say every 3 years, in reference to specified milestones to ensure that the licensee(s) continues to meet licensing requirements. If not, the licence could be subject to revocation. Taking into account the licensing regimes in European countries, this proposal would seem to be difficult to implement.

A fixed period of duration for all types of licences is recommended in the CEPT countries.

l) Universal Service obligations.

This concept exists in the European Regulatory framework and is part of the wider concept of public obligation. In the US such obligations exist e.g. "Distress and Safety obligation" as explained in 2.4., but the FCC decided not to impose such obligations on S-PCS operators. Europe may impose some of these obligations, such as the provision of emergency calls via the dialling of the 112 code. Consequences of this proposal must be studied by the ECTRA Project Team on Numbering.

With the exception of emergency calls, no universal service obligations need to be imposed in the licensing conditions of S-PCS systems.

m) Relevant experience and technical expertise.

This information is often required for the licensing of satellite services in Europe. Relevant experience and technical expertise will probably have to be maintained in satellite licensing regimes due to the complexity of S-PCS systems. This condition must therefore be included in earth station licensing.

It appears that relevant experience and technical expertise should be pre-conditions.

n) Data protection.

Guarantees on data protection are probably needed for S-PCS systems containing information on the identity of the users, the routing of communications, the location of users and billing. This information will be stored in limited locations and may even be implemented in one country only. Confidentiality concerning the content of the transmitted messages is also required.

Data protection is relevant to the licensing of both systems and earth stations.

o) Public decency.

General law applies in each of the countries where the service is provided. Because of this, S-PCS operators must be able to disconnect any service that infringes the law of a country. It does not appear that this issue is really of relevance to S-PCS, and should therefore only be discussed at a national level. This condition does not have to be introduced in the licensing conditions of earth stations.

It appears that public decency is not relevant to S-PCS.

p) War and Defence requirements.

Requirements imposed by laws related to war and defence must be considered separately from licensing rules.

As the S-PCS system is a global one, it is difficult for a government to impose such requirements, except in the case of interruption of the service in its territory. Nevertheless, war and defence requirements are national issues.

War and Defence requirements are national issues.

q) Consumer protection.

This is normally considered a general condition and no obligations are attached with the licence. Therefore it seems difficult to introduce such a condition into European licensing regimes.

Consumer protection is not a relevant licensing issue.

r) Description of the system.

This is normally considered as general information to be provided by applicants to NRAs prior to the granting of a licence. After the granting of a licence, obligations are attached to it. However if a description of the system is not provided, the NRA cannot issue a licence. For this reason, "description of the system" must be considered as a pre-condition. The main information to be given is the location of the earth station for its frequency licensing and for the site clearance. Information on modifications made to the system after the granting of the licence must also be given if the licence has to be modified or if a new licence is required. The description of the system is not a licensing operating condition, nonetheless some information on it is required from NRAs before granting a licence.

It appears that the provision of information should be considered a pre-condition of licensing.

Summary of conditions to be adhered to and information to be given by applicants in order to obtain a licence for S-PCS provision is provided below.

A-Conditions:

- Efficient use of frequency bands,
- Proof of financial status (pre-condition),
- Legal interception (pre-condition),
- Availability of terminal standards,
- Emergency calls,
- Relevant experience and technical expertise (pre-condition),
- Data protection,
- Provision of information on the description of the system (pre-condition).

B-Information:

- Coverage,
- Frequency bands,
- Ownership of consortia,
- Interconnection,
- Location of earth stations.

It should be noted that a few countries require “conditions of an administrative nature” which have not been included in the above list. These conditions can be: the national registry of operators, national accounting procedures, conditions preventing companies with tax or social security debts from having a licence, etc.... The reason for their exclusion is that

- i) they are normally out of the scope of telecommunications licensing in a lot of other countries;
- ii) the harmonisation of conditions of an administrative nature cannot be made by telecommunication authorities.

3.2 - Procedures of licensing regimes.

In section 2.3, the S-PCS licensing regime has been divided into 4 elements related to:

- the system (space segment and basic services),
- earth stations,
- interconnection and
- terminal equipment.

After taking into account the results of the questionnaire sent to NRAs, it was established that almost all the national licensing regimes in Europe are compatible with all 4 elements. It is therefore necessary to propose a new licensing procedure for S-PCS in Europe including national licensing regimes by a coordinated procedure and when possible by harmonised procedures and conditions. For this reason, ETO carried out new proposals. A first description and analysis of the ETO proposal is given in this section and details are provided in chapter 4.

3.2.1 - The system.

The results of the ERO study on frequency for S-PCS and the analyses of paragraph 2.3.1. appear to lead to the conclusion that the key to a successful S-PCS licensing regime in Europe is the establishment of a selection process of. Such a process is also mentioned by the FCC (as explained in paragraph 2.4). The selection process may be avoided if it is possible for all applicants to obtain sufficient frequency spectrum for their systems. In order to obtain information on potential systems and to have a clear view of spectrum assignment, it is necessary to issue a preliminary invitation to interested parties which seems close to the EC Call for information related to S-PCS. The main difference is that the EC’s call is to gather information, prior to defining “S-PCS”, and prior to making any kind of decision on the issue of selection.

In regard of: i) the time schedule of applicants having obtained a licence to establish their system from the FCC within the US territory, and ii) the need to offer services on time throughout the world, the European licensing process must be established very soon.

If a selection process is needed, several principles may be established:

a) The launch of the selection process must be publicly announced in order to give all potential applicants the opportunity to declare their intention of establishing such a system.

b) Rules must be established in advance by ECTRA, based on the study undertaken by ETO and in particular dealing with the conditions mentioned in 3.2 above.

c) The procedure must be flexible in order to give applicants a chance to reach a common position on technical issues such as transmission standards and the division of the frequency band.

d) The procedure must be transparent and must take into account the situation in other regions, in particular the USA and Asia.

The result of the procedure will be a decision which is binding among participating countries. A body therefore needs to be designated and a legal framework adopted. This body could either be ECTRA and ERC together or the European Union .

Information on the projects is needed if a selection process is established and also if it is not, in order to assign frequency bands to S-PCS and to split the bands between the 2 transmission technologies (CDMA/TDMA) within the 1.6/2.4 GHz MSS bands . For this reason it is proposed that an invitation to interested parties be organised. This would provide information which will be used for deciding how to split the assigned band between the 2 transmission technologies (CDMA/TDMA). One Invitation procedure needs to be organised for each frequency band allocated to MSS.

The information obtained through the Invitation will not be used by ECTRA and ERC for deciding which systems to allow to compete for national licences in Europe.

After the invitation to interested parties and the ERC decisions, it will be assessed whether or not the need for a selection process exists. If not, a third phase is needed in order to grant national licences to entities in a co-ordinated manner. This phase may be partly organised through the One-Stop-Shopping procedure administrated by ETO on behalf of ECTRA members, but other procedures can be studied.

If a selection process is needed, criteria involved must be defined before the above-mentioned Invitation is issued. However, the procedure to be followed can be defined after the proposed decision of the Commission is approved by the European Parliament and the Council in mid 1996.

A first arrangement on the OSS procedure for liberalised services transmitted through fixed networks came into force on 8 November 1995 and a second arrangement on satellites is currently under discussion within the ECTRA PT on Licensing (see in annex 9). The OSS procedure aims to facilitate the granting of authorisations in more than one European country. Authorisations granted through this procedure remain national licences which are granted by the NRAs of the countries in question. It has to be noted that the applicant can use either the OSS procedure or may contact each NRA directly. These two possibilities must be kept for other future arrangements, in particular for S-PCS.

3.2.2 - Earth stations.

Almost all European countries have a licensing regime for earth stations and these countries generally consider that existing rules must be applied as they are without any modification. Nevertheless, it will only be necessary for a few countries to grant licences and their decisions will have effects on all the other European countries.

Therefore, a co-ordination procedure could be studied in order to harmonise the granting of national licences in the countries involved. National licences may be co-ordinated through the OSS procedure.

3.2.3 - Interconnection.

A first presentation of this issue is made in paragraph 2.3.3. which underlines the importance of the draft European directive on interconnection and poses 2 questions:

1-Should authorised S-PCS be given the right or the possibility, to be connected to all public networks (fixed or mobile)?

2-Should public operators be given the right or the possibility, to be connected to all authorised S-PCS?

If the systems proposed by the applicants offer solutions to the problem of interconnection in all countries with public networks, no specific rules are needed. In such cases, general rules on competition and in particular articles 85 and 86 of the Union Treaty apply.

If this is not the case, S-PCS will most likely have to respect the rules on Mobile networks even if the draft mobile directive excludes satellite systems. In some countries, authorised S-PCS have the right to be connected to public networks only if they have obtained an individual licence.

In conclusion, it is proposed that interconnection be considered as an issue organised through private agreement, nevertheless arbitration by NRAs is needed in the case of conflicts arising between S-PCS service providers and other telecommunication companies from other countries. NRAs involved are those which have granted licences to the parties in conflict.

3.2.4 - Terminal equipment.

Since terminal type approval and terminal licensing may both be required for S-PCS, it is necessary to make a distinction between them. Type approval gives the manufacturer the right to sell terminals and guarantees the free circulation of these terminals to users within the European Economic Area. A licence gives users the right to use the terminal and in particular frequency spectrum. Three different situations may occur, in some countries the licensing procedure integrates the type approval procedure, in other countries the two procedures are clearly separated and in some others licences do not exist and type approval is the only procedure required. A harmonised procedure is therefore needed for terminal equipment with regard to both type approval and licences and a proposal for such is presented in section 4.4.

Type approval must be carried out in application of European Directives 91/263/EEC and 93/97/EEC as explained in paragraph 2.3.4. Unfortunately, standards will differ from region to region; therefore, it will not be possible to obtain mutual recognition of terminal approval between regions as well as a guarantee from administrations for these terminals to be put on all the markets. Discussions on these standards are currently being undertaken between Europe, Japan and the US under the FAMOUS programme in order to harmonise these standards as much as possible.

Even if it does not seem possible to put any terminal type approved in one region on the market of another region, it is suitable to reach agreement on the free use of terminals all around the world. This could be done by mutual recognition of the licences granted to terminal equipment.

ECTRA strongly supports the idea of individual licences not being required for S-PCS. The licensing regime depends on the regulation of each country, it can therefore be a free regime or a general licence regime. A common position needs to be established with regard to the general licence regime. ECTRA's position on this subject is mainly due to the fact that it is possible for some terminals to have a multi-mode transmission (S-PCS and GSM, DECT...). It would therefore be better to adopt the same rules for S-PCS and GSM. Such a proposal also seems logical if we consider that S-PCS is the first step in the next generation of mobile systems. These systems could be introduced progressively and could be compatible with the first generation of S-PCS as well as with GSM.

3.3 - Entities which must be granted licences.

3.3.1 - Service providers.

Service providers are companies that sign a contract with a consortium owning a system and then offer the service to end users. They generally sell terminal equipment and administrate the billing of the service. They are therefore the only contact point between the system and the user. In view of the situation in some countries, there is a need to divide service providers into two sub-categories. The first sub-category is defined as companies designated by the consortium as the single representative of the consortium in the countries involved. These companies can be called "**national service providers**". The second sub-category is defined as companies retailing services provided or transmitted by S-PCS operators. These companies can be referred to as "**retailers**".

As for GSM, a licence does not need a licence to be granted to retailers in order to provide services in almost all European countries. For S-PCS, the same solution may occur. Nevertheless, in some countries, service providers are the only representatives of S-PCS systems and if an authorisation is required for the provision of a service, the authorisation has to be granted to the "national service provider".

3.3.2 - Earth station operators.

In the case of earth stations, a licence has to be granted to the company owning and managing the earth station. As stated in paragraph 3.3, the licence is a national one, granted by the NRAs of the country in which the earth station is implemented.

3.3.3 - Terminal manufacturers and retailers.

Paragraph 3.2.4 concludes that no individual licence should be required from any party, this is the most relevant licensing regime for the users.

3.3.4 - Conclusions.

It appears that individual licences should only be granted to national service providers in almost all the countries and to earth station operators in countries where earth stations will be located. It also appears that neither space operators nor users will require a licence. In order to obtain a certain coherence between the licences granted to elements of a single system, it should be deemed necessary to co-ordinate the granting of these individual licences. A proposal for such a co-ordination procedure is presented in section 4.5.

CHAPTER 4

PROPOSAL FOR A FRAMEWORK FOR A HARMONISED LICENSING REGIME

The aim of the second phase of the study on S-PCS is to establish the framework of a harmonised licensing regime for S-PCS within Europe. Such a framework may be the option supported by ECTRA. The study will provide ECTRA and the Commission with a description of different phases of the authorisation procedure necessary for implementing this procedure, as well as a description of conditions to be taken into account and areas where harmonisation is needed. The second phase of this study is based on the proposal presented in chapter 3, on the principles presented in the work programme which are included in the first phase of the study and comments received from the ERC, the MPT, the JPT on MSS and potential S-PCS consortia.

The second phase also takes into account the proposal for a European decision on S-PCS (see annex 11) adopted by the Commission on 8 November 1995. Article 7 of this proposal refers to cooperation of the Commission with CEPT and ETSI. Cooperation is, however, limited to the study of necessary technical criteria and conditions. Chapter 4 also includes proposals for ways of extending the field of co-operation between the CEPT and the Union to these procedures. It should be noted that the Commission's proposal and ETO's report on S-PCS propose very similar procedures.

The licensing procedure referred to above is divided into four parts: an invitation to interested parties (a similar procedure called "call for declaration of interest" is also mentioned in the Commission's proposal referred to above and these procedures are compared in section 4.1 and 4.3), the ERC decision on the reservation of the frequency bands and, if necessary, on the splitting of these frequency bands between TDMA and CDMA, a selection process if required, and the granting of national licences in a coordinated manner. The report describes the procedure for each part, defines its status and lists the conditions and information required. Nevertheless, further study will need to be carried out for each part later on. This chapter also gives information on lawful interception, numbering and fees.

Modifications may be introduced into the above licensing framework if the Union Council adopts a position regarding S-PCS licensing at its meeting in May. This decision of the Council will be made after it considers the above-mentioned proposal of the European Commission.

4.1 - Invitation to interested parties.

In this report, the procedure described above will be referred to as "the Invitation", the purpose of which is to provide information and make recommendations to ERC, ECTRA and NRAs. This procedure could be used as a basis for further discussions within ECTRA, ERC and the European Union. ERC should be involved in the establishment of the procedure in order to ensure that such a procedure will provide all the information that ERC requires to arrive at a decision on frequency issues. The Commission's comments are also needed in order to be certain that such a procedure is in line with the eventual Union Decision (mentioned above) and in particular its "Call for Declaration of Interest".

4.1.1 - Purpose of "the Invitation".

The purpose of the Invitation is to collect information on the S-PCS systems which are planned to be used to provide telecommunications services throughout Europe. Information on this subject is essential in order to help ERC make a decision or recommendation on frequency bands. It should be noted that the authenticity of the information provided must be proven in all cases. The Invitation must be divided into several parts, one for each frequency band. The reason for this is that the two next steps (ERC decision and Selection process) involve separate procedures for each band.

Each part of the invitation can be organised over different time-periods. A first invitation may be organised for the systems requesting frequencies in the 1.6/2.4 Ghz bands and a second for the 2 Ghz bands. A separate invitation may also be organised for the so called "small LEOs" in the 137-138 and 148-150.5 Mhz bands.

The information obtained in this way will not be used to grant or deny individual licences which is, in fact, the role of NRAs. Nevertheless, consortia that do not respond to this Invitation must be aware that ERC decisions on frequency matters will only take into consideration information received from the Invitation. When responding to the Invitation, parties will also have the possibility of commenting on European licensing procedures. The collecting of comments must be organised at a national level so that not only potential S-PCS operators but all interested parties are involved. The next step in the licensing procedure (the ERC decision) will be adopted by ERC after the results of the Invitation have been processed.

The purpose of the Invitation proposed by ETO should be compared with the two Calls of the Commission. A first Call has been undertaken by the Commission and published in December in the Official Journal of the European Union. Its aim is to collect information from any entity interested in, or affected by the provision of S-PCS in the European Union. Information received will assist the Community in defining the scope and the modalities of a selection and authorisation process with regard to S-PCS. This first Call is therefore, a preliminary procedure which differs completely from the Invitation.

The second Call proposed by the Commission in its draft Decision which is currently under discussion within the Council, and the Invitation proposed by ETO are both included in an authorisation procedure. Nevertheless their respective purposes differ. The aim of the Call is to select space operators and therefore may be compared with the selection process mentioned in section 4.3. The result of such a Call is an authorisation given to space operators. The Invitation proposed by ETO should be undertaken at the very beginning of the procedure and its only aim is to make recommendations to the bodies which should decide on frequency assignment or grant licence to earth stations operators and service providers. Further comments on the second Call proposed by Commission are given in the section 4.3 dealing with the selection process. The establishment of this call depends on the decision of the Union Council on the issue of S-PCS in May.

4.1.2 - Entities involved in the Invitation.

The entities which need to be involved in the organisation of such an Invitation are all the entities dealing with regulatory matters at a European level: ECTRA, ERC, ETO, ERO and the European Commission.

In addition to the above bodies, ETO proposes that ITU should be informed of the establishment of this procedure in perspective of the first ITU World Telecommunications Policy Forum on GMSS (Global Mobile Satellite Services) including S-PCS being held from 21st to 23rd October 1996. The results could also be communicated to ITU, nevertheless, information received from applicants will not be transmitted.

On 29 June 1995, the Council adopted a Resolution on the further development of mobile and personal communications in the European Union. In this resolution, the Council considers as a priority objective, prior to 1st June 1996, the definition of a harmonised approach to the authorisation of satellite-based mobile and personal communications. The Council considers that the study should be undertaken by ECTRA.

The ETO report should be considered as the ECTRA contribution referred to in this Resolution. On 8 November, the Commission adopted a proposal for a European Council and Parliament Decision on S-

PCS (annex 11) which completes the above-mentioned Resolution and which, if adopted, would enable the Commission to decide upon the licensing procedures.

The framework for carrying out frequency coordination in Europe is defined by Council Resolution 90/C 166/02, and is complemented by Council Resolution 92/C 318/01. These two resolutions identify the CEPT's ERC, and the ERO linked to it, as the basic centre for European coordination in this area. These resolutions require that full consideration be given to the mechanism (approval procedure) used by ERC for its decision-making. For this reason, ERC must be the leading committee on frequency issues. ERO will support ERC by drafting decisions and by participating in the report on the results of the Invitation which ETO must establish.

Taking into account the fact that the granting of licence remains a national issue and that the Council considers as a priority, the definition of a harmonised approach, the leading role in the first phase of the European licensing procedure should be given to ECTRA. If this is done, ECTRA will cooperate with ERC on frequency issues. ETO must continue to support ECTRA's work on S-PCS by administrating the procedure on behalf of ECTRA and by compiling the report on the results of the Invitation.

4.1.3 - The procedure.

In this chapter, ETO proposes a procedure that could be used as a basis for further discussion within ECTRA, ERC and the European Union.

The Invitation is a procedure requesting information from potential operators and their partners (earth station operators and service providers). The procedure must be organised in such a way that it ensures confidentiality and authenticity of the information received.

The procedure must be decided upon by ECTRA in co-operation with ERC and should be administrated by ETO in co-operation with ERO. ETO will also be helped by a panel composed of experts designated by ECTRA and ERC chairmen in consultation with the committees.

The panel's task is to analyse the information provided by potential operators and their partners and make recommendations to ECTRA and ERC. Proposals on its composition and role are presented in section 4.1.5.

As already stated, potential S-PCS operators may request that certain parts of the information they give remain confidential. It is therefore proposed that these operators indicate which parts of the information they wish to remain confidential and which can be transmitted to anybody. Nevertheless, the possibility of doing this needs to be severely restricted in order to obtain a high level of transparency and to avoid discrimination between parties involved in the procedure. When information is classified as confidential, the information will only be transmitted to a limited number of people from NRAs, ETO and ERO who will be chosen in advance, according to national laws.

The Invitation should commence as soon as possible for a 2 month period and ETO could be chosen by ECTRA and ERC to administrate the Invitation. A report on the results of the Invitation will need to be issued which should include recommendations addressed to ECTRA and ERC. Details of the report are given in section 4.1.5. ERO will also be involved in the section of the report dealing with aspects of frequency. The report will propose 2 draft decisions. The first draft will deal with licensing procedures and the second with frequency aspects. The report should therefore be distributed to the two committees in charge of these issues: ECTRA and ERC.

ERC could make a decision on which frequency bands to reserve for S-PCS and, if appropriate, on how to split these bands between the 2 transmission technologies (CDMA and TDMA).

ECTRA should decide upon the part of the coordination procedure which may involve the adoption of i) the arrangement on OSS procedure for S-PCS elements and ii) harmonised application forms or parameters.

The OSS procedure needs to be established six months after the launch of the Invitation .

Proposal 2: the procedure.

- ECTRA should request that ETO conduct 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 2 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.

4.1.4 - Information requested from interested parties.

A list of items for the proposed licensing regime, divided into conditions and information has, already been established in section 3.1. of the report. Information will be required from interested parties on almost all these items. Therefore, a new list is proposed in the table below, none of the items listed have been prioritised due to the fact that information is needed on all of them.

Interested parties can be divided into three groups: consortia or space operators (noted C in the proposal 3), earth station operators (noted ES) and national service providers (noted NSP). Some of these parties are concerned only with some of the items listed below, but the different parties involved in the same S-PCS system should provide information on all of them.

Information must also be given by consortia on the expected dates of implementation of earth stations or telecommunications services and on the expected deadlines for proof needing to be given of their financial status.

Interested parties responding to the Invitation should have the possibility of indicating which parts of the information they wish to be considered as confidential and for transmission to a limited number of people only.

The sole aim of the Invitation is to obtain information. Information received will be used to facilitate the adoption of a decision by ECTRA and ERC. Information is also required to ensure that potential S-PCS operators comply with all the necessary conditions (e.g. provision of emergency calls and availability of terminal standards).

Proposal 3 : Information requested from interested parties (Consortia, Earth Station 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, ES),
- Provision of the service to individual users (C, NSP).
- Coverage of European territory and of world (surface and population) (C, 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, ES),
- Location of earth stations in CEPT countries (C, ES),
- Availability of terminal specifications⁷ (C, NSP),
- Provision of emergency calls through 112 prefix (C, NSP),
- Numbering scheme used (C, NSP).

4.1.5 - The output and time-schedule of the Invitation.

ECTRA should request that ETO compile and issue a report on the information received from the Invitation by interested parties. This report, when compiled, should be presented to ECTRA, ERC and the Commission. The report should include a summary of the information received and should present this information in order to facilitate the granting of national licences by NRAs and to enable NRAs to assess potential operators. It will also identify the problems that may occur in some countries or with particular issues. In particular the report should analyse the situation with regard to frequency resource, numbering, lawful interception and terminal equipment standards and certification.

This report must be completed with an analysis of the above-mentioned issues and with recommendations. This task should be undertaken by a Panel that the chairmen of ECTRA and ERC should designate.

The section of the report dealing with frequency issues will be compiled in co-operation with ERO. Comments that ECTRA, ERC and the Commission would like to add to the report will be inserted in the final version.

The report on the Invitation should be available on demand to any interested party or person wishing to obtain information on S-PCS licensing issues and could be sent to the ITU Forum in order to contribute on the establishment on a world wide licensing scheme.

In order to illustrate how the above-mentioned “panel” could be established a possible framework is suggested below. It should be noted however that no decision has been yet adopted by ECTRA on this issue. The Panel could be composed of a limited number of people who are mainly experts from CEPT countries. The establishment of a Panel is a rather new concept to the CEPT and ETO would therefore like to illustrate its proposal by giving an example of how it could be composed.

⁷ see paragraph i) in section 3.1.

The number of its members could be limited to eleven, comprising of a chairman, the ETO and ERO directors and eight experts (four from each committee-ECTRA and ERC). In addition, the Commission could be associated with the panel, in accordance with CEPT rules concerning the participation of the Commission with ECTRA and ERC. The chairman of the Panel could be designated by the ECTRA and ERC chairmen in consultation with the two committees. The experts from the two committees could be designated by the chairmen of ECTRA and ERC; they will represent the committees or their working-groups or project-teams. It could be useful for these experts to be from different countries and they should have experience in frequency or licensing. The Panel could decide to organise interviews with some of the potential operators which have responded to the Invitation.

The tasks of the Panel could be as follows:

- to complete the draft report carried out by ETO in cooperation with ERO,
- to make proposals on the establishment of a selection process or on the granting of national licences without any European selection,
- to make proposals on frequency issues, i.e. assignment of frequency bands and the splitting of the 1.6/2.4 Ghz MSS bands,
- to propose a time schedule for the implementation of the different phases of the licensing procedures.

ETO proposes the following time-schedule for the first phase, i.e. the Invitation:

- One month after the ECTRA-ERC decision on the entire licensing procedure, to be adopted after the meeting of the Union Council in May, the Invitation is launched for a two-month period;
- Three months after the ECTRA-ERC decision , responses are collected by ETO;
- At the end of the fourth month , a draft report of the first results of the procedure is sent to ECTRA and ERC members and the Panel members;
- After the end of the fifth month, the Panel organises meetings and, if necessary, interviews for interested parties;
- At the end of the sixth month, a final report is issued by ETO and sent to ECTRA and ERC members for approval.

4.1.6 - Review of the situation.

In order to review the situation, new recommendations may be carried out and addressed to ECTRA, ERC and NRAs.

4.2 - ERC decision on S-PCS frequency⁸.

Information obtained from the Invitation will be communicated to ERC which is responsible for establishing European rules on the assignment of frequency bands for S-PCS and on the splitting of these bands between two transmission technologies.

⁸ This section has been elaborated in cooperation with ERO.

4.2.1 - A description of the procedure and the time-schedule involved.

The mechanism for adopting an ERC decision, as described in annex 1 of the ERC rules of procedures (annex 10 of this report), is summarised as follows: It normally starts when the ERC has instructed the relevant working group to carry out a draft. The draft must be made available to members, at least two weeks before the meeting at which it will be considered for preliminary adoption. Following this, the draft decision shall be open for public consultation for a period of at least two months. The decision shall then be formally adopted at the following ERC meeting taking into account, when deemed appropriate, comments received during the public consultation. Within two months of the final adoption, the member countries shall inform the Chairman of their commitment to implement the decision. After this has been done, the decision will be published, together with a list of countries having committed themselves to implementing the decision. Commitments from other countries can be given at any time, even after the first publication. The member countries shall inform the Chairman on the measures they have taken to implement the decision. Member countries of the EEA shall also inform the European Commission accordingly.

If, for examples ERC instructs a working group to propose a draft decision for its Spring meeting, and if such a draft decision is sent to the ERC plenary 2 weeks before its meeting in Autumn and approved during this meeting, the final text can be adopted at the ERC plenary meeting in Winter and it can be implemented before next Spring.

4.2.2 - Reservation of frequency bands for S-PCS.

ERO has undertaken a study for the Commission on frequency issues for S-PCS (excluding small LEOs), a final report of which was delivered to the Commission in mid 1995. Further studies are needed on small LEOs under 1 Ghz bands for which great difficulties are foreseen. In addition to this, it has to be noted that a World Radiocommunication Conference took place in Geneva from 23 October to 17 November 1995 where the issue of frequency allocation for MSS (which includes S-PCS) was discussed at length.

In the first place, it is necessary to stress that S-PCS type applications belong mainly to the category of services called Mobile-Satellite Service (MSS) which is defined in ITU Radio Regulation. Therefore, in theory, S-PCS applications could be implemented in any frequency band allocated to MSS in accordance with Article 8 of Radio Regulation. For practice purposes, however, it has been proposed that the following bands be designated to S-PCS systems:

- 1610 - 1626.5 / 2483.5 - 2500 MHz, and
- 1980 - 2010 / 2170 - 2200 MHz

Most S-PCS systems intend to use the 1.6/2.5 Ghz bands. ERO has stressed, however, that use of these bands would create serious difficulties within three other services:

- terrestrial fixed links,
- radioastronomy services,
- Aeronautical Radionavigation services.

In preparation for WRC-95, European Common Proposals (ECPs) were developed for fixed links and radio-astronomy services in order to reduce the constraints on MSS. Aeronautical Radionavigation services are only a problem in Sweden (primary allocation) and can be dealt with on a national basis. It is worth noting that the problem of scarce frequency resources exists mainly within this band. It seems that the management of this resource would be easier in the other bands mentioned in this section.

In its report on S-PCS, ERO stated that the above-mentioned frequencies should preferably be used for world-wide S-PCS systems. Regional or national systems should use the band 2500 - 2535 / 2655 - 2690 MHz.

As far as the bands 1525 - 1559 / 1626.5 - 1660.5 MHz are concerned they are currently heavily in use by INMARSAT and there are many advance publications for new MSS satellite systems. Therefore, it seems unlikely that new S-PCS will use these frequencies.

Equally important is the provision of feeder links in the 4/6 Ghz (C-band), 11/12 Ghz (Ku-band) and 20/30 Ghz (Ka-band) ranges⁹. Intersatellite links must also be considered. Feeder links were considered in detail at WRC-95.

As assignment has to be decided upon by NRAs, ERC should make a recommendation or a decision on which bands to designate for S-PCS. After this recommendation or decision, NRAs will have to decide on which part of these bands to assign to S-PCS operators.

Taking into account the elements mentioned above, ETO proposes that an Invitation be organised for each frequency band designated for MSS, and which can also be used for S-PCS.

4.2.3 - The splitting of the bands between 2 transmission technologies.

It has already been announced that future S-PCS systems will choose between CDMA (Code Division Multiple Access) or TDMA (Time Division Multiple Access) radio access technology for the transmission of signals. According to studies conducted in the radiocommunications sector, these two technologies are incompatible. This means that they cannot share the same frequency band. Consequently, if both technologies are to be used in a frequency band allocated to MSS, this band has to be subdivided into two parts. The advantage of CDMA is that it is not necessary to pre-judge the exact number of authorised systems, due to the fact that they may all share the same frequency band. This situation has occurred in the band 1610 - 1626.5 MHz. While in the United States a band split has been proposed, in Europe the question of a band split is still open¹⁰. However, if a new band split is proposed, justification of such a proposal is needed.

The decision on how to split the frequency bands must be made without any indication being given of the exact allocation of the bands to any specific system. There is only one main constraint with this option, in theory all potential S-PCS operators must obtain frequency on a fair basis; however, in reality it is likely that only one system in the band 1610-1626.5 Mhz will use TDMA transmission technology, whereas the other consortia have clearly indicated that they intend to implement CDMA in this band.

A decision has also to be adopted on whether it is possible or even necessary to reserve a part of these bands for further applicants. This could be done to allow entry for new competitors in the near future or to allow the development of a succesful system. Such a solution could also be interpreted as a reason for refusing resources to an applicant and may be in contradiction with principles included in the future Union directive on licensing.

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.

⁹ Teledesic, which intends to establish a satellite constellation using frequency in the 20/30 Ghz band, is not an S-PCS and has therefore not been considered in either the ERO report or in this report.

¹⁰ So far, no other proposals for the splitting of this frequency band have been made.

4.3 - Criteria for a potential selection process.

The purpose of establishing a selection process is to designate, for each frequency band allocated to MSS, a limited number of potential S-PCS operators and their contracted companies in charge of the provision of one element of the network or of the provision of services within a specific area.

The establishment of a selection process limiting the number of either earth station operators or national service providers has not been considered. Authorisation required for these two kinds of parties in S-PCS systems should be coordinated by NRAs, as proposed in section 4.5.

The likelihood of a selection process being adopted depends on the recommendation made by the Panel after the results of the Invitation have been taken into consideration. In any case, a procedure will only be defined and adopted if deemed necessary. In order to carry out this procedure, the positions of the European Parliament and the Council must be taken into account due to the fact that the Commission has already proposed a draft decision which is on the agenda of its May meeting. For this reason, at the moment it is not possible to know if the selection process will go ahead. Having said this, if the selection process is included in the licensing framework, some elements must therefore be known in advance from the first phase of the procedure (the Invitation), even if no selection is organised, such as the relevant criteria that will be used at the date on which selection is issued. If criteria are not defined in advance and a selection process is subsequently needed, a new licensing procedure should be established. The consequence of this would be further delays.

The aim of this section is to propose criteria and to analyse the consequence of establishing such a procedure on the other phases of the licensing process.

4.3.1 - Consequences of a selection process on the other parts of the procedure.

The list of information included in proposal 3 can be used as a basis for choosing the relevant criteria. The Invitation has therefore to be completed in order to provide a detailed description of all information and, most important for the information which will be used as criteria for the selection process. The applicant must also be informed in detail of how these criteria will be taken into account.

4.3.2 - Criteria.

Information requested from parties participating in the Selection process may be classified as confidential if requested by these parties, but the possibility of doing this needs to be severely restricted in order to obtain a high level of transparency and to avoid discrimination among parties involved in the selection process. Confidential information can be used for selection purposes and its transmission should be limited to a certain group of designated people in relevant bodies, according to national laws.

A first proposal of relevant criteria is listed below:

- 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,

All of the above are conditions required in almost all European countries and should therefore be implemented. The addition of "Legal interception means" to the above group also needs to be considered, even though some countries do not require this condition in their licensing regime.

These criteria are explained in section 3.1, nevertheless further studies on the efficient use of frequency bands need to be conducted by ERC/ER.

4.3.3 - The procedure.

The aim of this report is to present the different options to be considered. Its intention is not to make any actual proposals. This is a task that should be undertaken after the European Parliament and Council have made a final decision on this issue.

The procedures currently under consideration are presented below:

a) CEPT procedure.

ECTRA and ERC may adopt a common decision that will apply to all countries signing this decision. Nevertheless signature is decided by each country on a voluntary basis and CEPT rules do not provide any way of enforcing the decision throughout all CEPT countries.

b) Union decision.

The Commission may propose to the regulatory committee a decision that must be set up by the European Decision presented in 2.2.5. This procedure guarantees the enforcement of the decision in all Union countries, but does not provide a solution for non-Union countries.

c) Other.

A combination of the two above-mentioned options might reduce the disadvantages of each procedure but would probably be difficult to establish. The Commission has also listed several selection procedures in the presentation of its draft decision (section 2.2.6).

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.

4.4 - The harmonisation of terminal equipment authorisations.¹¹

4.4.1 - Procedures for the licensing of terminals

The use of radio equipment (including S-PCS handheld terminals) is subject to a licensing procedure in almost all CEPT countries. Section 3.2.4, describing the authorisation regime of terminals, indicates that the aim of a licence, when required, is to give users the right to use a terminal. Licensing is used as a tool to regulate the efficient use of frequency spectrum. The licence either needs or includes a type approval procedure which guarantees the free circulation of terminals in the EEA. In order to avoid confusion between the two procedures, it is proposed that the type approval procedure be considered separately.

Type approval must be carried out in application of European Directives 91/263/EEC and 93/97/EEC. The procedure could be implemented after the adoption and the publication of ETSI standards (ETS) and should be strictly limited to ensure conformity with essential requirements. Work on standards has already been undertaken within ETSI and ETS are expected to be adopted in 1997. Certification procedures included in the above-mentioned Directives should be carried out by the ACTE committee with the assistance of the TRAC committee and the ADLNB, the association body of testing organisations.

When the technical characteristics of radio equipment are such that the efficient use of spectrum can be achieved through means other than individual licence, the regime should be as simple as possible. In principle, this is the situation with S-PCS terminal equipment. Administrations, users, retailers and manufacturers will benefit from a more deregulated system for S-PCS terminal equipment. In such a licence free regime anyone can buy, possess and use this equipment without prior permission from the administration. The administration will not register individual equipment. The use of the equipment may however be subject to general provisions laid down in regulations.

There are different mechanisms through which such a licensing regime can be put into practice. Some administrations have simply added a clause in their legislation or lower regulation, exempting the possession and use of equipment from licensing. Some other administrations make use of a "general licence" or a "class licence" which is suitably published and which entitles anyone to use the equipment. A further possibility would be to issue a "blanket licence" to the network operator or the service provider, whereby the operator or service provider would be considered as the licensee of the terminal.

In section 3.2.4, it is also proposed that no individual licence should be granted for terminal equipment. The regime could therefore be a "free regime" or "general licence". Where general licence is required by NRAs it is necessary to define harmonised conditions. It is proposed that ECTRA and/or ERC should adopt a Decision defining the conditions to be adhered to in order to obtain an authorisation.

In addition to this proposal on the licensing of terminal equipment there is a need to reach an agreement with other regions in the world in order to facilitate the free circulation of terminals. Such an agreement should aim at authorising the use of terminals which have been licenced in one country or region, within another region. This agreement will be limited to the use of terminals and will therefore not include the possibility of putting terminals on the market due to differences in standards adopted in each region.

¹¹ This section has been carried out in cooperation with the ERC-RR group.

4.4.2 - Conditions for the licensing of Terminals.

The CEPT administrations have defined the criteria under which radio equipment should be free from individual licensing:

- a) the radio equipment is type-approved or is in accordance with the technical regulation of the administration in question;
- b) individual frequency assignment is not required;
- c) there is a high degree of certainty that the frequencies in question will remain fixed for a long period;
- d) there is no need for the administrations to establish individual technical or regulatory provisions for each user;
- e) there is no need for the administrations to register individual users and/or radio equipment;
- f) there is little risk of harmful interference with other categories of radio equipment.

If we consider how relevant the above list is to S-PCS terminal equipment, we can see that the criteria in b), d), and e) are clearly applicable.

The criterion in a) i.e. that for a licence to be obtained, these terminals need to be type approved by a notified certification body within Europe. It may be imposed even if no licence is required. Efficient use of frequency bands, data protection and interconnection are included in type approval procedures.

The criteria in c) and f) can be dealt with regionally through a harmonised approach to the authorisation of S-PCS networks or service providers.

Additional criteria may be added i.e. relevant information needing to be given to suppliers and retailers of terminals in countries where the use of the terminal concerned is allowed. This means that information on the coverage of the service should be included in the third condition.

In addition to these conditions is a list of additional conditions and information for the licensing of terminal equipment, such as Emergency calls, information on the description of the system and the availability of terminal standards.

All these conditions are listed below:

A-Conditions:

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

B-Information:

- Coverage,
- Frequency bands,
- Interconnection,

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.

4.5 - The coordination of national authorisations.

The harmonisation of the other elements of S-PCS systems is not possible in the near future. The other elements are earth stations, the provision of services, in particular voice telephony, and interconnection with other public networks.

- Harmonisation of licences does not seem relevant for earth stations as explained in section 3.2.2. It has to be noted that licences for earth stations will be individual licences due to the fact that frequency assignment is included.
- Harmonisation of licences for services has to be considered within the general framework of telecommunication licensing which must begin by the 1 st January 1998. It does not, however, seem relevant to study separately the harmonisation of the licensing of a service transmitted by specific means. Such licences may be general or individual licence, depending on the services concerned.
- Interconnection is also a general issue, the harmonisation of which will very soon be undertaken within the Union (see section 3.2.3).

In consequence, the granting of national licences for elements of S-PCS, except terminals (for which harmonisation is proposed in section 4.4), should be co-ordinated throughout Europe. The reasons for this are the following:

- The granting of authorisation to and the implementation of a specific earth station is needed to enable the provision of S-PCS services in a specific area and in consequence is needed for the granting of an authorisation to the national service providers. Co-ordination will aim at reducing delays and difficulties.
- NRAs may be involved in the licensing of one element and probably not in others; co-ordination procedures therefore give NRAs the possibility to automatically know about the licensing of other elements.
- The granting of separate authorisations for each element of a single system by several NRAs could restrict the transparency of the overall procedure. Transparency is one of the objectives of the licensing procedure, as stated in EU directives.
- The aim of co-ordination procedures, and specifically the One-Stop-Shopping procedure, is to facilitate the granting of national authorisations when required in several countries, and also to give all NRAs the possibility of clearly telling an applicant if a licence is required in his/her country and informing the applicant of the licensing conditions for the element concerned.

A coordination procedure has already been established for fixed services through the OSS procedure, a guide of which is annexed in this report. A second procedure for satellite services is currently under study. If it is shown that this procedure can also be used for S-PCS elements, further studies on a new procedure and a new guide will be undertaken. ECTRA has not yet decided if a OSS could be established for S-PCS. This is because results on the OSS procedure for satellites are needed before considering new areas for the OSS. Moreover, further discussions are needed on this issue after the meeting of the Union Council in May.

A short description of the procedure is nevertheless given in section 4.5.1. If earth station licensing is included, the existing procedure will have to be completed in order to take into account frequency issues and in particular results of the coordination procedure and registration of frequencies in the MIFR (Master International Frequency Register). Since only services are concerned by the OSS procedure, modifications to the existing OSS procedure are needed.

In order to implement the OSS procedure, the following steps need to be carried out:

- i) the adoption by ECTRA and ERC of an arrangement,
- ii) the establishment of an application form (see 4.3.2 below),
- iii) the publication of a guide and the establishment of a database on national licensing regimes for the elements involved.

The whole procedure needs to allow the authorisation of the systems and its elements by the middle of 1997, which is when the ERC decision will be adopted and implemented. If it is deemed necessary to establish a selection process this will cause the time-schedule to be put forward by six months.

4.5.1 - Description of the OSS procedure.

The aim of the OSS procedure is to facilitate the granting of national authorisations where they are required as well as to co-ordinate national positions with regard to the licensing of elements of the systems involved. It must be stressed that an applicant is entitled to contact each NRA individually if he decides that the OSS procedure does not cater to his needs.

The OSS procedure consists of:

- 1-A single contact point which is ETO, where NRAs, operators and Service Providers may obtain information on national licensing regimes and on the OSS procedure.
- 2-An application form in English for each element and for each entity which needs a licence. A group of application forms concerning a specific system could be sent together in order to facilitate the co-ordination of national positions and the management of the procedure. After this has been done, additional application forms could be sent individually.
- 3 -A single response, summarising the results of the procedure, is sent to each applicant, with any licences granted by different NRAs attached. When several applicants are involved within a single system, a report may be established which summarises the contents of each NRA response for the system involved.

Companies wishing to benefit from the OSS procedure must contact ETO to obtain information on the procedure and application forms. ETO will indicate which entities from a consortium need to apply and for which element of the system.

Following this, applicants of the same system send their applications to ETO, which screens them in order to see if they have been properly completed and to assess which NRAs they must be sent to. If an application form is incomplete, ETO returns it to the applicant involved. When the group of application forms is complete, ETO sends the applications to the relevant NRAs and a receipt is sent to the applicants.

NRAs must respond as soon as possible and a limited time-period defined by the arrangement may be imposed on services. ETO will then collect the responses concerning the licensing of services and will send a single letter back to the applicant. NRA responses will have the granted national licences attached. For frequency, responses depend on the coordination procedure administrated by ITU and no time limit can be imposed. Due to this, further study on the OSS procedure needs to be conducted in cooperation with ERO if earth stations are to be included.

4.5.2 -The Arrangement and Application Form to be made for satellite services.

ETO presented a draft arrangement for satellite services to ECTRA in February 1996. The text of the draft arrangement is attached in annex. Its scope is limited to VSAT and SNG and excludes S-PCS but these services can be included if OSS is considered as the most appropriate procedure for the coordination of the licensing of S-PCS elements.

The S-PCS elements relevant to the OSS procedure are:

- earth stations,
- services,

ETO will administrate the OSS procedure in co-operation with ERO. No fee is involved. Applicants must nevertheless pay fees to each NRA. ETO will check that fees have been paid in advance when it is necessary to do so. If this turns out to be so, ETO sends the single response to the applicant. Annual fees must be paid to NRAs once national licences have been granted.

4.5.3 - Time-schedule.

If a OSS procedure is implemented, ETO proposes the following time-schedule in order to illustrate the fact that such a licensing procedure requires at least one year before a licence can be granted:

- In October 1996 , the arrangement could be approved by ECTRA and ERC plenaries and sent to all NRAs for their signature;
- At the ECTRA meeting in February 1997 , a decision could be made on when to launch the OSS for Satellites and when to adopt application forms;
- In February/March 1997 the MPT could decide on the final version of the application forms;
- In September 1997 OSS could be launched for satellites.

4.5.4 - Conditions for the licensing of Earth Stations.

Section 3.1 on S-PCS licensing conditions provides a list of conditions and information. Below is a list of the conditions and information required for the licensing of earth stations. This list does not include all requirements of the general laws.

The list presented below should be considered as an all-inclusive one; in other words NRAs can request all or only some of these conditions, but they cannot request other additional conditions. Despite this, these conditions do not need to be harmonised due to the fact that only a few countries will be involved and that, in national regulations, licensing conditions are common to all satellite services. For this reason harmonisation should be considered in the work order on "satellite other than S-PCS".

The conditions listed below are required in at least one of the CEPT countries. More details on this subject will be provided during 1996 when establishing the OSS procedure, if decided by ECTRA, or when the overall procedure is approved by NRAs.

A-Conditions:

- Efficient use of frequency bands,
- Proof of financial status (pre-condition),
- Legal interception (pre-condition),
- Relevant experience and technical expertise (pre-condition),
- Data protection,
- Provision of information on the description of the system.

B-Information:

- Frequency bands,
- Interconnection,
- Location of earth stations.

Details of these conditions will be provided later on when a coordination procedure or the OSS procedure has been implemented.

4.5.5 - Conditions for the licensing of services.

Service providers are companies that sign a contract with a consortium owning a system and then offer the service to end users. They generally sell terminal equipment and administrate the billing of the service. They are therefore the sole contact point between systems, users and NRAs. As indicated in section 3.3.1, service providers have been divided into two categories: "national service providers" and "retailers".

For GSM, where the same situation occurs, licences are not required for service provision in almost all European countries. For S-PCS, the same solution could be adopted for retailers and,

in some countries, for national service providers as well. Nevertheless, in other countries where service provision requires an authorisation, the authorisation has to be granted to the national service provider.

Section 3.1 on S-PCS licensing provides a list of conditions and information. We shall now list the conditions and information needing to be given in order to be granted a licence. These conditions do not need to be harmonised. It is possible for NRAs to impose only some of the conditions included in the list below, but they are not allowed to add new conditions. These rules have been adopted for the previous OSS procedure and must be maintained for S-PCS.

A-Conditions:

- Proof of financial status (pre-condition),
- Legal interception (pre-condition),
- Availability of terminal standards,
- Emergency calls,
- Relevant experience and technical expertise (pre-condition),
- Data protection,
- Provision of information on the description of the system.

B-Information:

- Coverage,
- Frequency bands,
- Ownership of consortia,
- Interconnection,
- Location of earth stations.


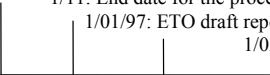
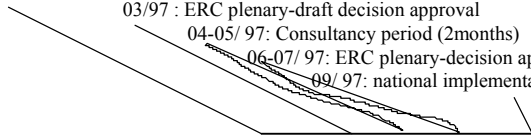
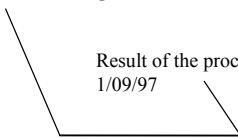


Details of these conditions will be provided when the OSS procedure is implemented.

Proposal 7: Coordination of national authorisations for earth stations and services.

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.

4.6 - Summary of the timeschedule of the phases of the licensing procedure.

The table presented below provides an example of a possible time-schedule, the starting date of which has been arbitrarily chosen for the first of September 1996.

Time-schedule	
ETO report	7/02: ECTRA plenary 7/03: ERC plenary and MPT meeting 1/04: Commission transmission 
Invitation to interested parties	1/09/96: Launch of the Invitation 1/11: End date for the procedure and panel set up 1/01/97: ETO draft report on the results 1/03/97: ETO final report and panel recommendations 
ERC decision on frequency	1/01/97 : ETO draft report sent to ERC members 03/97 : ERC plenary-draft decision approval 04-05/ 97: Consultancy period (2months) 06-07/ 97: ERC plenary-decision approval 09/ 97: national implementation 
Selection process (if needed)	1/03/97 ETO final report Result of the process 1/09/97 
OSS procedure	10/97: Approval of the arrangement on OSS for satellites-S-PCS 11/97: sending of the arr. to ECTRA members for signature 02/97: Ectra decision on the launch of the OSS for S-PCS 02-03/97: PTL approval of the application forms 09/ 97: launch of the OSS procedure 
National licensing within the OSS procedure	Starting date for national co-ordinated licences 

CHAPTER 5

CONCLUSIONS

This chapter presents the conclusions of the report carried out by ETO on behalf of ECTRA for the European Commission. It should be noted that ECTRA considered that the report presents the way that Europe should follow in order to issue the licensing of S-PCS. ERC which is, as ECTRA, a committee of the CEPT has been consulted on the frequency aspect of the report. The both committees of the CEPT concludes that further studies need to be undertaken in order to precisely define such a licensing regime.

The granting of licences for S-PCS is an issue which is currently under discussion within the Union, a final position on which is expected in May. For this reason a final decision cannot be made before this position has been established whatever is 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 conduct 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 2 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 specifications¹² (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.

¹² see paragraph ;) in section 3.2.1.

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: Coordination of national authorisation for earth station and services.

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.

ECTRA decision on ETNS

ANNEX 1

Work Requirement No. 48314

ETO reference 96 03 95 01

1. Subject: Satellite Personal Communication Services (S-PCS).

2. Purpose

To define harmonised conditions for the authorisation of satellite network and personal communication services required for the creation of an internal market for such services¹³, where appropriate involving mutual recognition of national authorisations¹⁴.

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 services¹⁵ provides for the harmonisation of conditions for authorisation and a procedure to determine categories of services for which such prior harmonisation is not necessary.

On 7 December 1993, the Council adopted the resolution on introduction of satellite personal communications services in the Community and 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

¹³Commission 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.

¹⁴Proposal for a directive on mutual recognition of licences and other national authorisation for the provision of telecommunications services (OJ C 248,25.9.92, p4) and amended proposal.

¹⁵Proposal for a European Parliament and Council directive on a policy for the mutual recognition of licences and other national authorisations for the provision of satellite network services and for satellite communications services (COM (93) 652 final, 4 January 1994)

ECTRA decision on ETNS

harmonised in view of the authorisation of satellite network and communications services.

4. Work requirement

- (1) to identify different 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 co-ordinate the results with ERC¹⁶/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 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 March 1996.

6. Deliverables

Two 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 as they will be submitted to CEPT/ECTRA for approval (1st November 1995).

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 March 1996).

¹⁶European Radiocommunications Committee.

ECTRA decision on ETNS

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 floppy disk in Word for Windows V2.0 format. Graphics shall be made available on separate hard copies.

7. Manpower

It is expected that this task can be accomplished in 6 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 3 man/months.

ECTRA decision on ETNS

QUESTIONNAIRE on S-PCS

- A. With regard to S-PCS ETO decided to adopt the definition given by the Commission in its Green Paper on Mobile: "Radiocommunications-based services, where there is a direct communication from hand held equipment to satellites, though potentially routed through terrestrial-based infrastructure for a portion of specific connections"

Do you agree on this definition?

If you do not agree, could you please explain why and propose another definition?

- B. Please give a detailed description of the licensing procedures and conditions applicable in your country for S-PCS.

During the meeting of the ECTRA Mobile Project Team on 16 May 1995 four elements were identified in licensing for S-PCS. For this reason we would like you to give answers to the following four issues separately and specify, for each of them, also the licensing regime for frequency.

1-The system, including infrastructure and basic services and its related down-links from the satellite to the terminal (give a detailed description of the scope of this licence)

As a general comment, it is worth to recall that, for frequency matters, in some countries ITU coordination is considered as the only required procedure

2- Ground stations (gateways and control stations) and the related up-links and down-links between the satellite and the ground stations

3- Direct (or first) connection to PSTN and other Public network (e.g. mobile networks).

In general this issue is included in the general licence granted to the public operator(s). What is the situation in your country? Does this general rule apply or does the S-PCS provider need a specific licence or a notification to NRA to be connected to the PSTN?

4-Terminal equipment and its related up-links from the terminal to the satellite.

As a general comment to this issue, it is worth to recall that the general licence covering GSM terminal equipment could be considered at the moment as the only relevant procedure.

- C. Within the study ETO must collect and analyse information on the fees required for the granting of licences.

Please, could you send me before 15 November information on the following questions:

1-What are the different categories of fees required for S-PCS?

2-Do you require fees that must be paid before the granting of the licence?

3-Do you require annual fees?

4-How you calculate the amount of fees?

ECTRA decision on ETNS

The European Committee for Telecommunications Regulatory Affairs (ECTRA) adopted at the ECTRA Plenary meeting on 18 October 1995 the above decision. During the two months following the adoption of the decision the ECTRA chairman has received commitments in writing from the following CEPT member countries to implement the terms of this decision. Belgium, Croatia, Denmark, Finland, France, Germany, the Netherlands, Norway, Portugal, Spain, United Kingdom, Switzerland. The Chairman of ECTRA will publish this decision again within six months of the date shown below and will insert the updated list of countries committed to implement the terms of the decision at the appropriate place in the text under 'Decides'.

21 December 1995

The European Conference of Postal and Telecommunications Administrations,

considering;

1. *the results of the ECTRA consultation on strategic options for numbering of telecommunications services in Europe (ECTRA/PTN Doc No 277), notably that;*
 - * *Europe must take positive action to create a numbering environment that will facilitate harmonised user access and the development of a strong European telecommunications industry*
 - * *Europe should implement a pan-European telephony numbering space for specific pan-European services as soon as possible*
 - * *corresponding satisfactory global services may not already exist*
2. *strong support from the European Numbering Forum for implementation of the ETNS*

taking into account;

1. *the Council Resolution 92/C318/02 of 19 November 1992*

DECIDES;

That the following CEPT members; Belgium, Croatia, Denmark, Finland, France, Germany, the Netherlands, Norway, Portugal, Spain, United Kingdom, Switzerland;

1. *shall co-operate in finding the best approach to the creation of an ETNS to facilitate pan-European services*
2. *shall support contributions created by the ECTRA/PTN, in consultation with the European Numbering Forum and submitted to ITU-T, in order to ensure that Country Code 388 remains available for the ETNS; while investigating the possibility of basing the ETNS on the use of national numbering resources; this investigation to be completed by March 1996*
3. *shall preserve the interests of CEPT countries in the ITU-T by promoting the views agreed in consultation with the ENF*
4. *shall review this Decision in June 1996 in order to agree the most appropriate method for implementation of the ETNS*

Potential S-PCS competitors.

Names	services	networks
Iridium	Voice, data, facsimile, RDSS (tracking and global paging)	66 LEOs satellites, 765 km 6 polar orbit planes 1616-1626.5 Mhz bidirectional TDMA/FDMA
Inmarsat	Voice, data, facsimile, paging and VAS.	12 ICOs satellites 10385 km 2 planes up-links: 1980-2010 Mhz down-links: 2170-2200 MHz
Globalstar	Voice, data, facsimile, RDSS (tracking and global paging)	48 LEOs satellites, 1414 km up-links: 1610-1626.5Mhz down-links: 2483.5-2500 Mhz CDMA
Odyssey	Voice, data, facsimile, RDSS (tracking and global paging)	12 MEOs satellites, 10370 km 3 orbital planes up-links: 1610-1626.5Mhz down-links: 2483.5-2500 Mhz CDMA
Ellipso		6 to 24 LEOs, 1250/500 km up-links: 1610-1626.5Mhz down-links: 2483.5-2500 Mhz CDMA
Aries		48 LEOs satellites, 1020 km 4 polar orbital planes up-links: 1610-1626.5Mhz down-links: 2483.5-2500 Mhz CDMA
Elekon-Stir		1.6/2.4 Ghz - 1.6/1.5 GHz
Quasigeo		1.6/2.4 Ghz - 1.9/2.2 Ghz - 1.6/1.5 GHz
Constellation		1.6/2.4 GHz
AMSC		1.6/2.4 GHz
Mediastar		1.6/2.4 GHz
F-SAT ICO/LEO		1.6/2.4 Ghz - 1.9/2.2 Ghz
Glomass-M		1.6/2.4 GHz
Gonets		1.6/1.5 GHz
Koskon		1.6/1.5 GHz
Signal		1.6/1.5 GHz

Orbcom	Data	148/137 MHz
Starsys	Data	148/137 MHz
Vitasat	Data	148/137 MHz
LEO-One	Data	148/137 MHz
Final-Analysis	Data	148/137 MHz
Gemnet	Data	148/137 MHz
S80 TAOS	Data	148/137 MHz
SAFIR	Data	148/137 MHz
Courier	Data	148/137 MHz
Kircom	Data	148/137 MHz
Iris	Data	148/137 MHz

This table is an illustration of the potential SPCS operators. The information contained is based on the table published by the European Commission in its proposal for a Union Decision on S-PCS referred above, and on the information contained in the ERO report on S-PCS. The table may not be exhaustive.

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 and the modifications will be implemented in the years to come.

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 with 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 exercise 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 coordination.

The procedure for satellite network coordination 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 coordination notification and registration of frequency assignment and orbital position. ITU has two main roles concerning coordination 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 agreements are often established through direct negotiations between operators.

The purpose of the ITU procedure is to provide access to the frequency spectrum for stations or specific services in a country located in a specific region¹⁷. 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 coordination.:

- * Avoidance of any harmful interference¹⁸ 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 coordination 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 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:

¹⁷ 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.

¹⁸ 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.*"

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

- * Advance Publication Information (API), also called pre-coordination, through special sections in ITU's weekly circular;
- * Coordination 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 coordination phase must normally be carried out within 2 to 6 years before the service is provided and coordination 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 coordination procedure. Ongoing protection is granted for countries or areas where the registration has been accepted, this means where coordination 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 coordination 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 Administrations¹⁹. Administrations are invited to comment on the publication within 4 months, and to state whether or not they believe that harmful interference could occur with regard to their system and that coordination 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 coordination procedure 6 months after the first publication in section A²⁰. Despite being the first to submit the relevant information to the API. The API does not give any special right or priority²¹ to notifying administration

* Coordination

¹⁹ Information contained in the weekly circular is also published in the quarterly publication of the Space Network List.

²⁰ Non-geostationary satellites are not taken into account within the procedure.

²¹ Delays on API procedure is currently six months.

To start coordination 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 its 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 negotiation, 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 coordination has been successfully achieved, results are notified to the ITU. No time limit for the organisation of such a coordination procedure has been defined. Coordination of non-geostationary satellite networks in some particular bands (mainly MSS and its feeder links) is subject to the procedure involved in resolution 46²².

* Registration.

The last phase of the procedure, after a succesful result has been obtained in the coordination 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.

²² Delays on coordination procedures is currently 18 months.