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COMMUNICATION FROM THE COMMISSION

on satellite personal communications

Draft

COUNCIL RESOLUTION

on the introduction of satellite personal communication services in the European Community

(presented by the Commission)

CONTENTS

SUMMARY

Various proposals for satellite personal communications systems and services have been presented in some detail and were the subject of much debate at the World Administrative Radio Conference (WARC-92) in Torremolinos, Spain, in February 1992, under the name of Low Earth Orbiting (LEO) systems.

Satellite personal communication networks will permit direct communication from hand held equipment to satellites, and will be able to reach anywhere in the Community, or indeed anywhere globally. These systems, based on new technology can be expected to lead to major changes in the communications environment in the Community, notably in personalised communications.

In addition to the question of spectrum allocation, the types of service which are envisaged give rise to a range of policy issues relating to aspects of the Community's telecommunications and space policies which merit early consideration.

The major shift towards personal mobile communications (rather than fixed communications) to which non-geostationary satellite systems and services as well as the next generation geostationary mobile satellite systems will contribute, may bring about extensive changes in satellite communications and in telecommunications in general, as well as in the way of regulating telecommunications services at a global level.

The strategic importance of these systems and services is therefore considerable. A *strategic assessment* of all aspects is necessary at this early stage as input to an overall effort to arrive at a consolidated appraisal of the importance of this type of service for the European market and the European industry, as well as in determining the efforts required in the regulatory and standardisation fields with regard to these systems.

This Communication seeks to set out the principles on which the Community could base its position. In the light of the analysis set out in this current document, the Commission has prepared a draft Council Resolution on the introduction of satellite personal communications services in the Community, which it invites Council to adopt.

COMMUNICATION FROM THE COMMISSION

on satellite personal communications

1. INTRODUCTION

During the past year an enhanced concept of satellite personal communications services has been introduced for global implementation in the latter half of the decade, based on direct communications between, on the one hand, mobile terminals (including hand held equipment) and, on the other hand, non-geostationary satellites or the next generation of geostationary satellite systems.

Various proposals for satellite personal communications systems and services have been presented in some detail and were the subject of much debate at the World Administrative Radio Conference (WARC-92) in Torremolinos, Spain, in February 1992 under the, not entirely correct, name of Low Earth Orbiting (LEO) systems.

The proposals for these satellite personal communications systems foresee use of circular low and medium earth orbits, highly elliptical orbits, or geostationary orbits. In the non-geostationary case, the satellites would move relative to the earth and the communications links might therefore need to be passed from satellite to satellite. In the geostationary case, the proposals concern a planned evolution of the current generation mobile satellite systems towards the use of personal satellite services.

Communications via such satellite personal communications systems are established by interconnecting the satellites to the end-users, if necessary through the existing terrestrial networks.

It is becoming increasingly evident that in addition to the question of spectrum allocation, which was partly dealt with at the WARC, the types of service which are envisaged give rise to a range of policy issues relating to elements of the Community's telecommunications, trade, regional and space policies, which merit early consideration, including:

- regulatory aspects;
- competition policy;
- standardisation and intellectual property rights matters;
- economic and industrial considerations;
- multilateral framework and geo-political relations; and
- third generation mobile communications policy (Future public land-mobile telecommunication system or FPLMTS).

The major shift towards personal mobile communications, rather than fixed communications, to which satellite personal communications systems and services will

contribute on a global scale, may bring about extensive changes, not only in satellite communications but in telecommunications in general, as well as in the way of regulating telecommunications services at a global level.

The strategic importance of these systems and services is therefore considerable. A *strategic assessment* of all aspects is necessary at this early stage as input to an overall effort to come to a consolidated appraisal of the importance of this type of service for the European market and the European industry, as well as in determining the efforts required in the regulatory and standardisation fields with regard to these systems.

2. BACKGROUND

At the instigation of several US-led companies and consortia, the US delegation to the WARC 92 made proposals for two types of non-geostationary satellite systems: the small, 50-100 kilogram class, to be used for data-communications and "store and forward" messaging services, and the larger, 350-750 kilograms class systems, used for data-communications and real-time voice into handheld mobile units around the globe. Both can be classified as satellite personal communications systems, although the evolutionary use of geostationary satellite systems for handheld mobile communications also falls under this general concept.

The proposals for the larger non-geostationary systems have in common the feature that they would provide more or less global coverage by a number of orbiting satellites at a low orbit (700-12000 km) by comparison with the more conventional geo-stationary systems (36000 km) currently in use. The frequent, but flawed, use of the term Low Earth Orbiting Satellite systems (LEO) is used to describe systems whereby a low orbit non-geostationary system would operate in conjunction with light, battery powered, hand held receivers and with earth stations connected to each other and to the fixed network.

The small systems comprise proposals which would also have more or less global coverage, use handheld terminals but for messaging and paging only, without the possibility of real-time voice use. These systems are significantly cheaper and do not appear to employ risky technology.

The major advantages of all these systems are that they offer global mobile communications in areas where there are no cellular mobile services because of insufficient traffic density, and in areas which have no communications service and in particular no telephone services (remote areas and some regions in developing countries).

There is most likely a significant market for such services including construction and exploration sites, branch offices of multinational corporations, travelling business people as well as basic communications services in isolated and less developed areas.

The systems proposed vary considerably in their technical parameters, investment costs and the eventual price of services. It is extremely difficult from a cursory inspection of the proposals to form a view as to their viability and the balance of costs and advantages.

The current proposals for the larger systems comprise, *inter alia*, IRIDIUM (Consortium led by Motorola Inc.), ODYSSEY (Consortium led by TRW Inc.), GLOBALSTAR (Consortium led by Loral Inc./ Qualcomm Inc.), ELLIPSO (Consortium led by Ellipsat Inc.), CONSTELLATION (Constellation Communications Inc.), and PROJECT-21 (Inmarsat).

The small systems proposals concern, *inter alia*, VITASAT (Volunteers In Technical Assistance), ORBCOMM (Orbital Sciences Inc.), STARSYS (..), and GONETS (Russian Federation).

Further proposals in various stages of planning and/or development and which either plan to make use of non-geostationary orbits or aim to compete with the above mentioned proposals by using the geostationary orbit are: EMS and ARTEMIS currently under development by the European Space Agency, ARCHIMEDES (a highly inclined orbit system concept under study by the European Space Agency for mobile communications and digital audio broadcast), Calling Communications (Project name unknown), TRITIUM (Hughes Space Systems Inc.) (a geostationary concept), CELSTAR (Celsat Inc.) (a geostationary concept), and AMSC/TMI (joint US/Canadian domestic mobile geostationary orbiting system).

3. ECONOMIC AND INDUSTRIAL CONSIDERATIONS.

The reported investment costs of the proposed systems range from $0.5 to 3.5 billion US$, mainly in the building and launching of the satellite constellations which range from 12 to 66 satellites in the non-geostationary case, and possibly fewer in the geostationary case. The hand sets are likely to cost from a few hundred dollars (comparable with existing cellular receivers) to $3,500 for the most sophisticated handset envisaged. The estimates of final prices to users for calls consequently vary considerably as well, from $0.30 to $3.00 per minute and maybe more.

The economic relationship between the satellite operating company and the companies providing interconnection with the terrestrial networks and interfacing with the owners of the mobile terminals is unclear. The distribution of revenue will however be crucial to the respective interests of the operators and users.

Most of the systems envisage competitive procurement of handsets under unspecified licencing terms. This potentially raises simular issues to those involved in the case of digital mobile terrestrial telephony (GSM case: terms of licensing, territorial aspects etc.).

It is anticipated that the European space industry will face a much more competitive US civil space industry in the future as a result of the transfer of technology from the military to the civil sector (the "peace dividend") especially in the non-geostationary satellite systems sector. In particular the fall-out from Strategic Defence Initiative (SDI) projects to the proposed systems is thought to be considerable.

The transfer of technology from the military to the civil sector has always been a significant factor in the success of the U.S. space industry. Orders for U.S. Government contracts in communications satellite systems accounts for 75 percent of the total order books (military contracts 65 percent, other Government contracts 10 percent). In Europe, the orders for Government communications satellites are a factor of 10 lower in absolute terms and make up 40 percent of the total orders. A salient example is the U.S. Global Positioning System (GPS), a military development which has led to a monopoly in the civil sector.

The only means at the disposal of European industry to reduce the imbalances in research and development support have been the budgets of the European Space Agency and the national space agencies.

The opportunity for participation in these programmes by European space industry is consequently of some importance. With the limited possibilities of only two or three of these global satellite personal communications systems, U.S. based operators could obtain world dominance in these operations even if European companies participate in the satellite launches and in some aspects of manufacturing. In this respect it would seem that potentially higher participation of European's equipment and service industry in Inmarsat's Project-21 would reduce such dominance.

There seems a further risk of monopoly provision of these services by U.S.-led consortia. Most investments have to be made before a significant service can begin to operate; there is a limited number of available "gateways" to the terrestrial networks (essentially the telecommunications operators and the terrestrial mobile operators) and however successful the general concept, it appears that several hundred thousand subcribers would have to be

using the service before two or more competing satellite operators could break even. The system with the first license will therefore have a significant competitive advantage which might lead to *de facto* monopolisation or dominant position.

An important aspect of the current stage of development of the concepts for satellite personal communications systems and services is the relative immaturity of the concepts themselves. Although it appears that much of the technology has been proven in other - military and civil - space programmes, the service concept itself is totally new. It would therefore be premature to license these systems at too early a stage, as risks exist that major system redesigns will require other regulatory and licensing arrangements.

At this early stage, a pro-active and forward looking licensing regime can be developed in order to assure successful implementation of competitive concepts in a spectrum - and market - limited environment.

4. FREQUENCY AVAILABILITY AND SHARING.

In 1991 the US proposed a new allocation of the spectrum between 1610 and 1626.5 MHz for the larger non-geostationary systems. WARC-92 agreed to a global allocation of these services in the major part of these indicated bands on a co-primary basis, as well as to an allocation in the 2 GHz band in the US only, subject to various footnotes and restrictions the effects of which still needs to be analysed.

A footnote in relation to an early introduction date of mobile satellite service frequencies in the 2 GHz range in the United States is already a potential threat to European interests unless a future World Radio Conference would resolve otherwise, as the United States would be in a position to deny use of this spectrum to potential competitors while facilitating a domestic start-up between 1996 to 2005 in advance of non-US competitors.

The small systems were proposed for the bands 137-138 MHz and 400.15-401 MHz for the downlinks (Space-to-Earth) and 148-149.9 MHz for the uplink (Earth-to-Space). The indicated bands have been and will continue to be used for meteorological satellites, space research and space operation services, and also by mobile and fixed services. The WARC-92 agreed to allocation of these services on partly co-primary and partly secondary basis, also subject to footnotes (restrictions).

Turning to the larger systems, the initial spectrum availability at the higher frequencies is quite narrow (10-20 MHz at most) and *it is not yet determined how many such systems could co-exist in a competitive environment* and for how long.

Although frequency spectrum is often obtained on a first come, first served basis, there have always been efforts to ensure equitable access to a certain minimum of frequency spectrum for each ITU member nation. The question arises whether the very limited amount of spectrum now made available for non-geostationary satellite systems, can ever be shared in some equitable way. If not, the question arises whether the first come, first served basis is still a valid one, given the interests involved.

The limited availability of spectrum seems to indicate that from a frequency sharing point of view, only a small number (probably 2 to 5 systems) can be licensed, both for the smaller and larger systems using the two proposed access techniques - Code Division Multiple Access (CDMA) and Time Division Multiple Access (TDMA) in the same frequency bands.

This, combined with the economic reality that the market will probably only sustain a few systems, means that it is important to consider at the ontset under what regulatory regimes these systems should be licensed and how the total global regulatory fabric should be designed to allow balanced participation by a variety of industries and nations. The underlying questions of equitable access to frequency spectrum and frequency sharing will need to be considered and resolved at global level rather than solely at national level before any of these systems are licensed.

5. STANDARDISATION.

In order to facilitate world-wide roaming for any mobile system, standards (ideally, but difficult to achieve, a single world standard) will have to be developed, on the basis of which type-approval and licensing can take place. It would mean that either ETSI would have to accept the U.S. standards integrally for Europe or negotiations will have to take place with the U.S. and the rest of the world, either bilaterally or multilaterally within the CCIR/CCITT framework.

These and other concerns were raised by several countries during the WARC-92 conference, notably by the developing nations, and as a result a resolution was passed which calls for the establishment of standards for the operation of non-geostationary satellite personal communications systems.

It is not yet clear what the impact of this resolution will be. However, the ITU is requested to conduct, as a matter of priority, *technical, operational and regulatory* studies to ensure *"..equitable and standard conditions of access for all countries..".* Consideration of a Community or wider European position should therefore be undertaken in these matters.

The Commission has therefore already provided ETSI with a mandate to prepare a technical report in which the standardisation aspects are investigated in some depth and details provided on the desirability and required availability of standards within the strategic context of the implementation of the service.

6. REGULATORY CONSIDERATIONS.

The existing regulatory regimes for satellite services around the globe are very different and might prove to be the stumbling block for many of the satellite personal communications systems seeking quasi-global coverage. This divergence is due to the various stages of development of telecommunications policies mainly as a result of different levels of economic and industrial development.

Although it might be desirable to have a convergence of these regulatory regimes, it would be unrealistic to expect this to happen in the near future and at an overall global level. Nevertheless, some initial efforts are underway to try and seek some form of convergence of the regulatory regimes of the Western world as expressed for example in the Transatlantic Declaration[1] of November 1990 between the European Community and the United States.

The Commission is finalising a proposal for a Council Directive for the mutual recognition of licences and other national authorisations for the provision of satellite network services, i.e. the establishment and operation of satellite earth station networks, and/or the provision of satellite communication services. The provision of satellite personal communications services would qualify for consideration under such a regime.

As far as global licensing is concerned, it has however to be noted that any legitimate demands from regulators, with consequences for technical requirements at system level, are likely to be difficult to fulfill completely as these would have a world-wide impact on other regulatory regimes. It seems difficult to conceive that all the different demands from regulators around the globe could be accommodated.

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1 In this joint Declaration on the long-term perspectives of the relationship between the United States and the European Community, both Parties agreed to consult on important matters of common interest. Under this Declaration, seeking convergence of regulatory regimes, without prejudice to the independance of both Parties, is seen as a possible subject of consultation.

The U.S Government is currently somewhat ahead in the licensing process but this is mainly due to the fact that the U.S licenses not only the actual service but also the building and launching of the system.

The early licensing in the U.S for building and launching these systems, and for subsequent service introduction, is leading to the development of licensing conditions for the current proposals at a rather early stage, well before the global conditions for equitable access to spectrum, and the world-wide standards, which are required for type-approval and subsequent licensing, have been established and agreed.

The advances in the U.S. are therefore likely to result in the imposition of standards and modes of operation, as system and service concept development will take place well in advance of the establishment of global standards. Given the industrial interests involved, and given past attitudes, the U.S. Government may be expected to put their weight behind the U.S. industry in this matter.

The problem posed is therefore one of some difficulty since, on the one hand, system and service concept development of the various competitive concepts should be allowed to take place, while, on the other hand, a situation should not be created where these early developments dictate the path to be followed for future concepts . This situation is further aggravated by the shortage of spectrum and the limited size of the market.

Consequently the initial decisions on spectrum and licensing are likely to be determinant, and the current U.S. regulatory and licensing timescales could lead to industrial and regulatory positions that are to the detriment of others.

Early consideration should therefore be given to the appropriate regulatory regime for such services in the Community in the light of the recommendations of the Satellite Green Paper, the resulting Community satellite communications policy, and the particular economic and technical characteristics of global mobile satellite services and systems.

7. POLITICAL CONSIDERATIONS.

The political considerations concern mainly the global dimension of satellite personal communications systems and services and their strategic role in providing mobile telecommunications services, as well as the related global regulatory structure under which they are provided.

In this respect, one of the crucial questions concerns the institutional basis these systems would have, and in consequence the exact roles of the system owners, service providers, satellite operators, manufacturers, etc., within any overall structure.

Some countries at the WARC-92 Conference requested that such systems should operate under a, presumably new, inter-governmental organisation. This proposal, although illustrating the concerns in this area, seems unlikely to be acceptable, given the current moves towards changes in existing intergovernmental satellite systems.

Nevertheless, *the global regulatory framework under which these systems will have to operate is strategically and politically one of the most crucial aspects to be considered.*

The absence of a global regulator has in the past been a contributing factor which led to the creation of intergovernmental systems where the Governments, as Parties to the constituent Convention, jointly regulate the use of the systems.

The current divergence in regulatory developments and telecommunications policies is leading to a review of these structures as the outdated and inflexible constituent instruments no longer suffice. This divergence is usually related to the state of economic development and, in particular, the lower priority given by developing nations to the rate of replacement of telecommunications systems and the provision of a greater range of service offerings.

In the case of developing nations, it is evident that they prefer more control over an operator who provides basic telecommunications services and wish to retain potentially important foreign currency revenues. As developing countries are unlikely to be all considered as manufacturing bases for terminals, the cost to them for these systems is likely to be high without any tangible return unless they can participate in some other way.

The larger satellite personal communications systems are more likely to be considered by developing countries as a means of bringing a basic telephony service; many developing countries are indeed interested in these systems as an alternative to the investment in conventional telecommunications infrastructure programmes.

However, the introduction of these systems into developing countries, as was the case with INTELSAT, might be seen as a vehicle to facilitate certain politically inspired paths of development of overall industrial and geo-political relations between these countries and the United States, as part of an overall foreign policy of the latter.

The role of Japan and also the new roles which the Russian Federation and other CIS states and, in the future, China will assume in these matters are of importance, since these

nations have considerable space activities - both in launch services and in geostationary and non-geostationary satellite systems - which tie into the complex interplay of industrial participation and competitiveness, and geo-political influence spheres.

The role of the U.S. Government and especially the Federal Communications Commission in the current process of licensing of non-geostationary satellite systems in the U.S is therefore of critical importance. The limited amount of available spectrum as well as the economic reality that the market will possibly only sustain a few systems, and the extremely high, upfront capital investments required for these systems, mean that financing will only be realised for the first (few) licensed systems.

In consequence, the conditions the Federal Communications Commission will impose as part of the licensing process are likely to have a global regulatory impact, albeit not necessarily by desire.

The progressive actions of the U.S Government which have contributed to a large extend to the attention satellite personal communications systems have received, should now be matched dynamically by the European interested parties, both at national and at Community level in order to preserve these opportunities.

8. ACTIONS UNDERTAKEN BY THE COMMISSION TO DATE.

Following the initiation of proposals for satellite personal communications systems, the Commission has taken several steps to increase awareness of the proposals and to contribute to policy decision in the Community at large.

The Commission delegation to the World Administrative Radio Conference (WARC-92) in Spain in February 1992, paid particular attention to the radio regulatory developments and the positions various states took in the discussions. During the Conference, the Commission delegation submitted a request to the U.S. Government representatives for early consultations.

A European Delegation, led by the Commission with participation from CEPT, subsequently met with the U.S.Government (Department of State, Department of Commerce, Federal Communications Commission) in Washington in September 1992 to discuss the current proposals and to gain a better insight in the U.S. licensing process.

This mission confirmed that a more thorough European discussion was necessary to come to a full appraisal of the current proposals within the wider scope of the service introduction of satellite personal communications systems.

The Commission accordingly organised a two-day hearing in Brussels during November 1992 where the proponents of the six existing large satellite projects presented details of their systems. Some 130 representatives of European telecommunications operators, satellite organisations, equipment manufacturers, various space agencies, national regulatory authorities and standards bodies attended these hearings. An independent panel of experts prepared a report which was widely distributed to all interested parties.

In addition to an oral presentation, the presenters were subject to a question-and-answer session by the audience and the rapporteurs. It was generally agreed that the hearing answered two concerns: to enable a comparative assessment of the proposed systems to be made by the European interests, and to underline to the, mostly U.S. based, consortia the importance of the initial European views on the matter.

The report of the hearing concluded that a number of important policy issues need to be addressed relating to :

a. problems of compatibility of the proposals with the emerging Community regulatory framework, and between international (ITU), U.S., and Community rulemaking ;

b. European industrial policy interests, both as regards equipment and services ;

c. economic uncertainties in terms of business plans and technological maturity, translated into policy questions as concerns competition and as concerns frequency allocation.

Specific issues which were singled out by the report concerned:

1. the I.T.U. process of global standard setting and, mostly, radio regulatory harmonisation on the basis of a Resolution adopted at the WARC-92 calling for *technical, operational and regulatory* studies to ensure *"..equitable and standard conditions of access for all countries.."*,

2. the state of flux in the regulatory and policy area in Europe which adds an element of uncertainty for those who wish to introduce satellite personal communications services in Europe,

3. the efforts required from the Commission, the CEPT/ECTRA regulatory body, the CEPT/ERC radio regulatory body, and the national regulatory authorities in facilitating the introduction of these systems,

4. the need for agreement on a range of standardisation questions such as interoperability, technical compatibility, health and safety aspects (including radiation protection and electro-magnetic compatibility), and intellectual property rights,

5. the need to address competition-related issues such as interconnection to existing and proposed networks, tariffing, equitable apportionment of accounting revenues on international traffic, equity participation by national telecommunications operators in these systems, network "by-pass" etc.,

6. the impact of a comparative large-scale introduction of such systems on the European aerospace and telecommunications manufacturing industry and on the corresponding service industry.

The Commission has already started to address some of these issues. In particular, the European Space Agency (ESA), the European Telecommunications Standards Institute (ETSI), and the European Radio Office (ERO, a body of the CEPT), have been asked to provide assessments of the industrial impacts on the space industry, the required standardisation strategy, and the frequency issues involved, respectively.

The industrial impact is of particular strategic importance at a time when Europe's space industry is facing far-reaching readjustments in ESA's long-term plans, there is overcapacity in satellite production, and major difficulties are experienced in gaining any substantial non-Community contracts for satellite systems, with the noticeable exception of launch contracts.

For the European industry participation in the satellite personal communications market on a level playing field, it would be appropriate to carry out the necessary technological developments within publicly funded communications research and development programmes at national and European level.

In line with its overall policy towards space, as presented in its recent Communication on the European Community and Space[2], the Commission is of the opinion that at Community level, closer cooperation is required with the European Space Agency and other organisations (e.g. national space agencies) in order to address this issue. In particular, the

[2] COM(92)360 final, 23.09.92

Community's Framework Programme for R&TD needs to complement ESA's efforts and close consulation is required on policy and regulatory issues as far as their possible impact on the industry is concerned.

Both ESA and Community Member States should be asked to invest at the required levels in the various research efforts, be it the Agency's, the Community, EUREKA or national programmes. However, these investments should be structured and coordinated in such a way that they have maximum impact at industrial level.

The Commission has further started to consult with the Member States within the forum of the Senior Officials Group on Telecommunications (SOG-T). Through this mechanism the Member States have been kept up to date on the Commission actions and their results.

9. PROPOSALS.

The strategic importance of satellite personal communications systems and services is considerable, not only in terms of new service introduction, but also in terms of industrial participation and benefits, and geo-political relations.

It is desirable to develop a strategy which allows the introduction of mobile satellite services via these systems based on favourable conditions for European industry and end-users. This strategy will also need to take account into the geo-political importance of these systems.

It is proposed that the strategy should be based on the following principles:

1. The Community considers that the provision of mobile and other satellite services via satellite personal communications systems can bring benefits to users and industry and the Community should try to reap the benefits of these services on acceptable terms and conditions.

2. In line with the spirit of the Transatlantic Declaration, and with the intention to seek a convergence in regulatory policies in relation to the introduction of satellite personal communications systems and services, and to the direct benefit of those systems seeking licences, the Community should endeavour to discuss these matters with the U.S. Government.

3. Contacts with other interested governments are sought to broaden the discussion beyond the current exchange between the Community and the United States.

4. The Community shall develop a strategy for the introduction of these services taking account of Community telecommunications, trade, space and regional development policies and in particular the competition rules.

5. The Community shall develop a position on matters concerning standardisation, frequency spectrum sharing criteria, and licensing.

6. Due consideration should be given to a Community or wider European position on standardisation matters to prepare for the near-future global discussions in the context of the ITU.

7. A platform for strategic discussions shall be established to enable interested industry, user, and regulatory interests to express themselves and to enable the establishment of a coherent common position within the context of a wider, future Community mobile communications policy.

8. The necessary additional research and development activities are undertaken via the appropriate mechanisms of the Community, the European Space Agency, and at national level. An articulated policy shall ensure that the overall effort is coordinated with the aim to achieve maximum impact at industrial level.

The aim should be to try to raise legitimate issues associated with the introduction of satellite personal communications systems and services and with the regulatory regimes under which they will operate.

It seems clear that Community industry and users can reap the benefits of these systems and services either through participation in the projects themselves or by the new diverse service offerings.

Thus, in general, areas of concern for the Community which need addressing are the following:

Frequency availability and sharing.

1. Policies which determine access to the available frequency spectrum should take account of:

the desirability of equitable access, rather than on a basis of "first come, first served",

the limited amount of spectrum available for current and future generations of systems,

the necessity for systems to share spectrum, allow for a balanced growth and for the introduction of future systems,

the requirements for worldwide compatible frequency assignments.

the world mobile third generation FPLMTS.

Regulatory and licensing aspects

2. Convergence of national licensing regimes would be desirable to a point that these systems can indeed commence operations on a solid regulatory basis.

3. Development of system concepts and the testing of key technologies should be stimulated under experimental licences, in order to assure that only fully viable systems concepts are licensed for full operations. Cooperation between regulators to guide these developments from a regulatory point of view and under a certain minimum amount of transparency would be extremely useful in this respect.

Policy aspects

4. Licensing of satellite personal communications systems and services should take place with a full awareness of telecommunications, trade, regional development and space policies and, in particular, of competition policies. The implications of the various national regimes would need discussion in order to remove, in advance, sources of future misunderstanding.

Standardisation

5. The development of worldwide standards should be progressed at an early stage and in parallel with the experimental and testing phase of the first concepts in order to ensure the availability of stable global standards at the time of commencement of full operation of the first systems. In this context it would be useful to come to an

understanding on anticipated responses to the ITU on the standards policy foreseen by WARC Resolution 70[3].

6. The question of intellectual property rights needs to be addressed in order to seek solutions to matters which have been important issues in other instances.

Research and development

7. Substantial improvements in coordination and funding of research and development activities to achieve maximum impact at industrial level in order to redress the balance vis-à-vis non-European competitors to the advantage of the European industry.

In order better to answer the challenge to develop a forward looking and pro-active policy and regulatory framework which would allow the introduction of satellite personal communication services to the benefit of the Community, the Commission is engaging in a substantial study contract which will investigate the significance of satellite personal communications systems in the formulation of Community policies for telecommunications, trade, space, regional development, and industry. The study should answer a number of the issues formulated above.

Further substantial discussion is however necessary. The wide variety of interests in the Community and the rest of Europe requires a forum of discussion through which detailed recommendations can be provided, not only to Council and the Commission, but also to other instances such as ESA, the CEPT and various national bodies. In this way a overall policy can be determined which will allow each institution to contribute to the effort within a coherent framework.

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[3] Former WARC Resolution COM-5/11.

10. CONCLUSION.

The Commission considers that it is of importance to work towards a Community position on satellite personal communications systems and their relevance to the European communications network. It therefore proposes that the Council should adopt the attached Resolution which is intended to provide a framework for the future development of relevant policy.

Draft

COUNCIL RESOLUTION

on the introduction of satellite personal communication services in the European Community

EXPLANATORY MEMORANDUM

During the past year an enhanced concept of satellite personal communications services has been introduced for global implementation in the latter half of the decade, based on direct communications between, on the one hand, mobile terminals (including hand held equipment) and, on the other hand, non-geostationary satellites or the next generation of geostationary satellite systems.

Communications via such satellite personal communications systems are established by interconnecting the satellites to the end-users, if necessary through the existing terrestrial networks.

The major advantages of all these systems are that they offer global mobile communications in areas where there are no cellular mobile services because of insufficient traffic density, and in areas which have no communications service and in particular no telephone services (remote areas and some regions in developing countries).

There is most likely a significant market for such services including construction and exploration sites, branch offices of multinational corporations, travelling business people as well as basic communications services in isolated and less developed areas.

Details of these advantages are set out in the Communication from the Commission on Satellite Personal Communications.

It is becoming increasingly evident that in addition to the question of spectrum allocation, which was partly dealt with at the WARC, the types of service which are envisaged give rise to a range of policy issues relating to elements of the Community's telecommunications, trade, regional and space policies, which merit early consideration, including:

- regulatory aspects;
- competition policy;

- standardisation and intellectual property rights matters;
- economic and industrial considerations;
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- third generation mobile communications policy (Future public land-mobile telecommunication system or FPLMTS).

The major shift towards personal mobile communications, rather than fixed communications, to which satellite personal communications systems and services will contribute on a global scale, may bring about extensive changes, not only in satellite communications but in telecommunications in general, as well as in the way of regulating telecommunications services at a global level.

The strategic importance of these systems and services is therefore considerable. A *strategic assessment* of all aspects is necessary at this early stage as input to an overall effort to come to a consolidated appraisal of the importance of this type of service for the European market and the European industry, as well as in determining the efforts required in the regulatory and standardisation fields with regard to these systems.

Early consideration should therefore be given to the appropriate regulatory regime for such services in the Community in the light of the recommendations of the Satellite Green Paper, the resulting Community satellite communications policy, and the particular economic and technical characteristics of global mobile satellite services and systems.

The Commission considers that it is of importance to work towards a Community position on satellite personal communications systems and their relevance to the European communications network. It therefore proposes that the Council should adopt the attached Resolution which is intended to provide a framework for the future development of relevant policy.

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COUNCIL RESOLUTION

on the introduction of satellite personal communication services in the European Community

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community,

Having regard to the Green Paper on the development of the Common Market for telecommunications services and equipment of 30 June 1987,

Having regard to the Green Paper on a common approach in the field of satellite communications in the European Community of 29 November 1990,

Whereas the Green Paper on the development of the common market for telecommunications services and equipment and the subsequent action plan single out as a priority the working out of a Community position regarding the future regulation and development of satellite communications in the European Community;

Whereas the Council Resolution of 30 June 1988 on the development of the common market for telecommunications services and equipment[1] considers as a major policy goal in telecommunications to elaborate a Community position on satellite communications, so that this sector can develop in a favourable environment, taking account of the competition rules of the Treaty and existing international commitments of the Member States;

Whereas the Green Paper on a common approach in the field of satellite communications in the European Community proposed a future-oriented structure for the development of

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1 OJ No C 257, 04.10.1988, p.1

satellite communications in the European Community by outlining a framework of Community legal measures and actions;

Whereas the Council Resolution of 19 December 1991 on the development of the common market for satellite communications services and equipment[2] gave support to the general goals set out in the Commission's Satellite Green Paper and noted with interest the intention of the Commission to propose the measures necessary to achieve those goals; whereas the Resolution invited the Member States to work as quickly as possible towards the development of effective, non-discriminatory and accelerated procedures for the establishment of separate satellite systems; whereas this Resolution also noted with interest the intention of the Commission to analyse the effects of the proposals on the European satellite communications industry;

Whereas the Commission proposal for a Council Directive on the approximation of the laws of the Member States concerning satellite earth station equipment, extending the scope of Directive 91/263/EEC[3], aims to implement a Community regime for type-approval of satellite earth station equipment and the mutual recognition thereof;

Whereas the Communication from the Commission on the European Community and Space of 23 September 1992 underlines the importance of Community contribution to the European space effort by helping to establish the appropriate conditions for the development of space applications markets and a competitive European space industry; whereas the Community contribution has as an objective to ensure the appropriate regulatory conditions allowing the development of new markets for satellite communications services and to encourage the consolidation and growth of a competitive space industry and promote its interests at international level;

Whereas the planned introduction of satellite personal communications networks and services on a global scale will be of considerable importance to the development of telecommunications services in the Community in general and to satellite and mobile services in particular, as well as to the development of the Community's space and telecommunications equipment and services industries;

Whereas the strategic importance of these global satellite personal communications networks and services is considerable; whereas it is becoming increasingly evident that the types of service which are envisaged give rise to a range of policy issues relating to the

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2 OJ No C 8, 14.01.92, p.1

3 OJ

Community's telecommunications, trade, regional development and space policies; whereas therefore the introduction of these services merits early consideration;

Whereas, given the global dimension of satellite personal communications, the timely development of a common approach is necesary; whereas the development of such a common approach by multiple bilateral actions of the Member States would entail excessive delays and cumbersome procedures because it would require a large number of individual actions; whereas these actions can therefore be better achieved at Community level;

Whereas the Council Resolution of 19 December 1991 on the development of the common market for satellite communications services and equipment urged that industrial aspects must carefully be kept in mind, including the need for an internationally competitive European industry in the field of satellite communications;

Whereas coordinated actions from the Community and the European Space Agency should aim to bring the industry up to a level of competitiveness which will enable it to participate fully in the provision of satellite personal communications networks and services;

Whereas the limited amount of spectrum currently allocated for the provision of mobile satellite services in general requires careful consideration in the introduction of satellite personal communications services;

Whereas the working out of suitable standards is vital to the creation of a competitive environment for the provision of satellite personal communications systems, services, and equipment; whereas the European Telecommunications Standards Institute (ETSI) should play a major role in the timely elaboration of these standards and within the context of international standards used by all partners in international trade;

Whereas the introduction of satellite personal communications services could play an important role in the elaboration of the satellite component of the future third generation mobile communications networks; whereas the Universal Mobile Telecommunications System (UMTS) projects in the Community's RACE programme contribute to this end;

Whereas the Community's telecommunications policy in general and the satellite communications policy in particular underline the need for competitive provision of services, in line with competition rules of the Treaty; whereas the dichotomy of competitive service provision and limited availability of frequency resources will need careful consideration in any proposed introduction scenario ;

Whereas the initial decisions on spectrum availability and sharing, as well as on licensing are likely to be determining factors in the competitive provision of satellite personal communications services; whereas a common position should aim to avoid industrial and regulatory developments detrimental to the Community's interests;

Whereas the global dimension of these systems and their strategic role in providing mobile telecommunications services as well as the related global regulatory structure under which they are provided should play an important part in the political considerations for the establishment of a Community policy; whereas the global regulatory framework under which these systems will have to operate is strategically and politically one of the most crucial aspects to be considered;

Whereas consultations with interested parties have confirmed the need for early consideration of the significance of satellite personal communications services; whereas it is therefore desirable to continue bilateral and multilateral consultations with all interested parties;

Whereas it is recognised that Community action and coordination of the overall strategy for introduction of satellite personal communications services will be the most effective way to assure the maximum benefit to industry, service providers and users.

RECOGNISES

1. the importance of the planned introduction and use of satellites for personal communications, and welcomes the opportunities this may offer for European manufacturers, service providers, and users;

2. the global characteristics of satellite personal communications services, in particular if provided through non-geostationary satellite systems, and their particular characteristics as they affect the European and international regulatory regimes;

3. the challenge for the Community to develop a forward looking and pro-active policy and regulatory framework which allows the introduction of satellite personal communications services, taking full account of the global nature of these systems, and the desirability of coordinated Community action;

THEREFORE STRESSES

the importance of developing a Community policy with regard to satellite personal communication systems and services, that will build on existing Community policies in telecommunications, space, regional development and trade in general and mobile and satellite communications in particular, taking account of the international ownership and operation of such systems;

INVITES THE MEMBER STATES

to work as quickly as possible towards developing a Community policy concerning satellite personal communications systems and services, and a Community position in relation to third countries, in particular within the context of international organisations, such as the International Telecommunications Union;

AND INVITES THE COMMISSION

1. to investigate the significance of satellite personal communications systems in the formulation of Community policies for telecommunications, space, trade, industry and regional development;

2. to strengthen further the cooperation with the European Space Agency in the determination of an effective joint policy on these systems aimed at enhancing the competitive position of the European space and related telecommunications industries;

3. to continue to monitor closely international developments, particularly in this respect the regulatory proceedings in the United States, and to consult, where appropriate, with non-Community countries on the coordinated introduction of these systems at a global level;

4. to reinforce its cooperation with ETSI and the ERC/ERO in examining the related standardisation and frequency issues respectively;

5. to submit proposals for the necessary harmonised conditions required for the licensing of these networks and services;

6. to set up a platform for strategic discussions among all interested parties from which detailed recommendations can be provided for the development of a coherent Community policy;

7. to propose, where appropriate, a Community position in the relevant international organisations, such as the International Telecommunications Union;

8. to report regularly on the developments in this area and, where necessary, propose appropriate measures and/or actions.

FINANCIAL OUTLINE

1. FINANCIAL IMPLICATIONS

1. Title of Action

COUNCIL RESOLUTION ON SATELLITE PERSONAL COMMUNICATIONS

2. Budget Line

A 2510: Expenditure on meetings of Committees whose consultation is compulsory in the procedure for drafting Community legislation (group 3).

A 1178: Technical administrative assistance in support of different activities

Titles A1 and A2:Staff and operating expenditure

B5-4010: Telecommunications Policy

B5-4011: Standardisation

3. Legal Basis

- Articles 57 (2), 66, and 100 A.
- Green Paper on a common approach in the field of satellite communications and services, COM(90)490 Final, 20.11.90
- Council Resolution of 19th December 1991 on the development of the common market for satellite communications services and equipment OJ No C 8, 14.1.92, p.1.
- Council Directive 93/.../EEC [on the mutual recognition of licences and other national authorisations for satellite network services and/or satellite communications services].

4. Description

4.1 Specific Objectives of the Action.

This action aims for the continued monitoring of the developments in the satellite personal communications area, with the aim to facilitate the introduction of this new communications service through the appropriate licensing regimes, accompanied by the development of the necessary standards on the equipment side.

The action has a strong impact on the development of satellite personal communications services in the Community and the rest of Europe and its justification lies in the necessity of establishing a Community-wide regime for services which are inherently international in nature. In addition, the action aims at supporting the European industry in their endeavours to take part in the manufacturing of space and ground equipment and the provision of services. An appropriate Community approach and support will thereby establish a broad base for satellite personal communications services and equipments markets in the Community.

4.2 Duration.

The proposed action is an annual action. Its duration is not limited.

4.3 Population aimed at by the Action.

The Resolution directly concerns the satellite service and equipment industry in the field of satellite personal communications which includes space segment and ground segment equipment suppliers, the service industry and users of satellite personal communications services in the Community.

5. Classifications

- Non-obligatory expenditure
- Dissociated credits

6. **Nature of Spending**

The Community's financial contribution shall, depending on the nature of the work, not amount to more than 50% to 100% of the resources invested. It will be needed for the assessment of the effects on trade, space, telecommunications and regional policies and for the establishment of standards and harmonized licensing conditions, through subventions given to ECTRA, ERC/ERO and ETSI for the elaboration of these conditions.

7. **Financial implication for intervention credits**

The proposed action will require to launch a study in 1993 on the impact of personal satellite systems for the Communities' trade, space, regional and telecommunications policies. This study requires an amount of 450.000 ECU in 1993 which is provided for in line B5-4010 of the current budget.

The proposal implies also to give mandates to ETSI for the elaboration of harmonized standards. For this purpose an annual amount of about 20.000 ECU covered by line B5-4011 is needed.

Indicative timetable:

1994	20.000 ECU
1995	20.000 ECU
1996	20.000 ECU
1997	20.000 ECU
1998	20.000 ECU

8. **Anti-fraud provisions**

The control of payments or of any services, preparatory, feasibility or evaluatory studies requested is carried out by the Commission prior to payment taking into account any contractual obligations, economic principles and good financial or other management practice. Anti-fraud provisions (supervision, reporting requirements etc.) will be included in all agreements and contracts made between the Commission and the recipients of any payments.

II. ADMINISTRATIVE EXPENSES.

The Community contribution will be covered by appropriations entered on budget items A-1 and A-2. They will be required to cover a contribution to the work done by ECTRA and ERC/ERO in establishing harmonised conditions for the provision of Europe-wide services, professional assistance, as well as committee meetings. The specific requirements for these last two items can be estimated to be about 1 man-year of expert services annually and 1 additional meeting per year of a Committee with 24 members which is constituted in the framework of Council Directive 93/.../EEC [on the mutual recognition of licences and other national authorizations for satellite network services and/or satellite communications services].

The estimated annual costs of the whole action in 1994 will be of about 165.000 ECU. They are not expected to increase in the following years. Mandates for ERC/ERO and ECTRA will require an additional amount of about 50.000 ECU annually which will be covered by budget line A-1178. The additional staff required (1 A) is estimated to cost 100.000 ECU which will be covered by Title A1 of the budget. The additional meeting will cost about 15.000 ECU per year. This amount will be covered by budget line A-2510.

III. ELEMENTS OF COST-EFFICIENCY ANALYSIS

1. Objectives and coherence with the financial programmation.

1.1 The proposed Resolution aims at the monitoring of the political, regulatory and technical developments in the satellite personal communications sector, and the determination of appropriate Community actions to facilitate the introduction of these services in the Community, in particular through the establishment of harmonised licensing conditions and of harmonised standards.

1.2 The action is provided for in the financial programmation of the DG.

1.3 The objective of the proposed Resolution corresponds to the general objective of the "establishment of an internal market for telecommunications equipment and services", defined in the financial programmation of the DG.

2. Justification of the Action

The proposed Directive contains measure necessary for the establishment of an internal market in the satellite personal communications services sector.

The types of services which are envisaged give rise to a range of policy issues reloating to aspects of the Community's trade, telecommunications, regional and space policies which merit early consideration.

The services forseen may bring about extensive changes in satellite communications and in telecommunications in general, as well as in the way of regulating telecommunications services at a global level.

A strategic assessment of all aspects is necessary is necessary at this early stage as an input to an overall effort to arrive at a consolidated appraisal of the importance of this type of service for the European market and the European industry, as well as in determining the efforts required in the regulatory and standardisation fields with regard to these systems.

The proposed action is fully in line with the principle of subsidiarity as the introduction of such a concept by multilateral actions of the Member States would entail excessive delays and cumbersome procedures because it would require a large number of individual negotiations. The objective can therefore better be achieved by an action at Community level.

The Member States, in a consultation meeting, have fully supported the proposed action at Community level and requested the Commission to develop the Community approach as described. The Member States' request implies not only the development of a political and regulatory framework but also a financial commitment in order, inter alia, to study the options, to mandate the development of harmonised standards and licensing conditions, and to elaborate the Community licensing conditions with the assistance of a Committee.

3. Follow-up and evaluation of the action.

The proposed Resolution sets out a reporting procedure which effectively consists of a requirement for the Commission to report regularly on any issue arising from the developments in this particular field.

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DOCUMENTS

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