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Towards Europe-wide systems and services -

**Green Paper on a common approach in the field of
satellite communications in the European Community**

Communication from the Commission

SHORT PRESENTATION

Satellite communications have developed dramatically during recent years. As the European Community approaches the Europe-wide market of 1992, satellite communications are becoming a vital element for the trans-European services and networks needed for the single European market, and the broader continental dimension which is developing from the revolutionary changes in Eastern Europe.

Since satellite communications represent by far the largest commercial application for satellite technology, they will determine, to a large extent, the commercial success of Europe's effort to gain a strategic and future-proof position in space. They have developed into an essential element of the common European audio-visual space, which is a central precondition for Europe's future political and cultural identity and coherence.

This Communication is being written at a time when the European Community is about to achieve its aim of completing the internal market by 1992. Satellite communications can make an important contribution to this process, given the appropriate regulatory and market developments.

In the field of satellite communications the challenge is particularly great. The Community's internal market is still highly compartmentalized. This may, if no changes are brought about, hamper the development of its satellite industry, which is still in its infancy in service terms - despite its advanced position in technological terms. This compartmentalisation has not allowed the appropriate use of the potential of the new satellite communications technologies for the provision of Europe-wide systems and services.

The need for change is therefore undeniable. The compartmentalisation of the Community's satellite communications market cannot be maintained in view of 1992.

Abolishing these restrictions is not only in the interest of users, service providers and equipment manufacturers, but also in the interest of the Member States themselves. The Commission's move for liberalisation in the field of terrestrial telecommunications, based on the Green Paper for the development of a common market for telecommunications services and equipment, was supported by all Member States, since they were convinced that they would otherwise forego the potential growth of this market, the business opportunities for their industry and the supply of their users with advanced telecommunications services.

In the field of satellite communications, the same considerations apply.

Furthermore, the recent changes in Eastern Europe define a range of applications which may prove particularly suited to satellite technology. Only with a lifting of restrictive national regulations within the Community, thereby allowing the implementation of Europe-wide satellite terminal networks, can the European Community play a full role in meeting the emerging satellite communications needs of its Eastern neighbours. Otherwise Central and Eastern Europe's satellite technology and equipment needs are likely to be met by suppliers from third countries, who can build on the existence of major satellite terminal networks already implemented in their home countries due to their more liberal regulatory regime.

Several Member States have already liberalised parts of their satellite communications sector on their own initiative. In particular, some Member States have authorised a number of operators to provide satellite services across borders towards other Member States. This raises a number of questions with regard to fundamental principles of the Treaty of Rome such as the free circulation of goods and services. It is important that these questions be resolved at Community level so that divergent national solutions are avoided.

The objective of this communication is to prevent such a divergent situation by proposing a future-oriented structure for the development of satellite communications for the Single Market of 1992.

The paper intends to extend the application of the general agreed principles of Community telecommunications policy to satellite communications, taking into account the specificities of this means of communication. Four major changes are proposed:

- *Full liberalisation of the earth segment, including both receive-only and transmit/receive terminals*, subject to appropriate type approval and licensing procedures where justified to implement necessary regulatory safeguards;
- *Free (unrestricted) access to space segment capacity*, subject to licensing procedures in order to safeguard those exclusive or special rights and regulatory provisions set up by Member States in conformity with Community law and based on the consensus achieved in Community telecommunications policy.

Access should be on an equitable, non-discriminatory and cost-oriented basis.

- *Full commercial freedom for space segment providers, including direct marketing of satellite capacity to service providers and users*, subject to compliance with the licensing procedures mentioned above and in conformity with Community law, in particular competition rules.
- *Harmonisation measures as far as required to facilitate the provision of Europe-wide services*. This concerns in particular the mutual recognition of licensing and type approval procedures, frequency coordination and coordination with regard to Third Country providers.

With the combination of these changes, a broad range of specialised services will become possible.

It is intended to proceed in the following manner:

- This Communication should lead to a debate in the Council, the European Parliament and the Economic and Social Committee and among all those concerned within the Community - the telecommunications and broadcasting sector, telecommunications and space industry, the trade unions, and in particular the many new users and service providers, such as education and training institutions - on the use that should be made of satellite communications, on the need for further development of satellite services and on the necessary regulatory framework to fulfil these requirements;
- After an appropriate consultation period, the Commission will present its conclusions to the Council on the implementation of a Community policy for satellite communications including the necessary regulatory instruments.

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I. INTRODUCTION

The working out of a coherent European position regarding the future regulation and development of satellite communications in the European Community was singled out as a priority in the 1987 Green Paper on the development of the common market for telecommunications services and equipment and the subsequent implementation action plan.^{1,2}

In its Resolution of 30 June 1988³ adopting the general principles of the Green Paper, the Council considered as a policy goal in telecommunications the "working out of a common position on satellite communications, so that this new information medium can develop in a favourable environment, taking account of the general rules of operation and exploitation of the network environment, as well as the competition rules of the Treaty and existing international commitments of the Member States".

It is the intention of this paper to follow up this objective.

The major part of the current regulatory and organisational structure of satellite communications in Europe was created more than a decade ago. In the meantime, dramatic technological advances have opened completely new avenues of use which go far beyond the role of satellites in public voice telephone transmission between Telecommunications Organisations for which this structure was originally principally designed. Television via satellites to cable TV head-ends and, more recently, directly to businesses and homes has developed into a major application of satellites in Europe. The development of small dishes of only 0.5 - 2.5 meters diameter for a variety of user applications - compared to up to about 30 meters for the traditional earth stations for trunk telephony and TV programme interchange use - have opened completely new opportunities for rapid development of Europe-wide systems by service providers - both public and private - tailored to very specific needs of individual customer groups.

¹ Towards a Dynamic Economy - Green Paper on the development of the Common Market for telecommunications services and equipment, COM(87) 290, 30/06/1987.

² Towards a competitive Community-wide telecommunications market in 1992 - Implementing the Green Paper on the development of the Common Market for telecommunications services and equipment, COM(88) 48, 09/02/1988.

³ Council Resolution of 30 June 1988 on the development of the Common Market for telecommunications services and equipment up to 1992, O.J. C 257, 04/10/1988, p. 1.

As a consequence, besides the traditional "point-to-point" applications of satellite communications developed by the Telecommunications Organisations to provide international and long-distance links in the context of the international organisations originally set up for this purpose - INTELSAT, INMARSAT, EUTELSAT - completely new applications have led to the development of new distinct markets, such as "point-to-multipoint" one-way and interactive two-way Very Small Aperture Terminal (VSAT) systems. These range from a few dozen up to several thousand terminals, and have the potential to become a vital component of Europe-wide business communications. Other applications include satellite news gathering (SNG) systems - the collection of news and data from multiple points - these are becoming important in the context of Europe-wide information and broadcasting activities, and direct-to-home satellite television.

In parallel, the number of satellite systems in place - on an international, national and to some extent private basis - is multiplying in Europe, corresponding to the new diversity of use which goes far beyond the past vision of satellite communications as an additional transmission system between national telephone systems.

However, the new services and markets can only become a reality in Europe, if the current regulatory restrictions - originally designed for another context and for other purposes - are carefully reviewed.

A number of Member States have recognised the basic change in market conditions brought about by the multiplication of possible uses and have started to review the regulatory conditions of the sector on their own initiative, abolishing restrictions of use liable to prevent the full development of the new services and systems.

Satellite communications were set aside for later consideration in the Green Paper on the development of the common market for telecommunications services and equipment. The consensus achieved, on the basis of this Green Paper and the subsequent political decisions, in particular at the Telecommunications Council on 7 December 1989 on the general future regulatory conditions of the telecommunications sector in the European Community, can now be the basis on which to build a common regulatory position in the field of satellite communications. Such a common regulatory position on satellite communications, while safeguarding the exclusive or special rights of Telecommunications Organisations allocated by Member States in conformity with Community law and the directives on competition in the markets for telecommunications terminal equipment and services,^{4,5} must take proper account of the requirement to use the *full* potential of satellite

⁴ Commission Directive of 16 May 1988 on competition in the markets in telecommunications terminal equipment (88/301/EEC), O.J. L 131, 27/05/1988, p. 73.

⁵ Commission Directive of 28 June 1990 on competition in the markets for telecommunications services

communications for the development of Europe-wide services with a view to the 1992 single market and the continental dimension introduced by the developments in Central and Eastern Europe. It must recognise the need to abolish those restrictions which prevent such new activities and create a framework which promotes them, as well as the need to support Europe's position in space and the objectives of Community audio-visual policy.⁶

A first step towards allowing full use of the potential of satellite communications was taken with the abolition of exclusive and special rights on the importation, marketing, connection, bringing into service and/or maintenance of receive-only satellite earth stations not connected to the public network, in the context of the liberalisation of the Community's terminal equipment sector⁷. It now seems timely to extend the application of the agreed general principles of Community telecommunications policy to satellite communications:

- liberalisation of use, while allowing for the implementation of regulatory safeguards through appropriate type approval and licensing schemes, as compatible with Community law and, in particular, competition rules;
- separation of regulatory and operational functions, in order to avoid conflicts of interest;
- implementation of harmonisation measures, as far as required for ensuring effective working of Europe-wide services and equipment markets.

Based on these considerations, a phased approach is proposed in chapter VI., in order to achieve a consistent Community policy on satellite communications:

1. Agreeing on basic proposed positions, which apply the general principles set out above to the satellite communications sector;
2. Initiating a number of measures at Community level which, based on the proposed positions, aim at allowing effective Europe-wide provision and use of services;

90/388/EEC, O.J. L 192, 24.07.1990, p. 10.

⁶ Communication by the Commission to the Council and to the European Parliament on audio-visual policy, COM(90) 78, 21/02/1990.

⁷ Commission Directive of 16 May 1988 on competition in the markets in telecommunications terminal equipment (88/301/EEC), O.J. L 131, 27/05/1988.

3. Launching a number of lines of action, in order to create a favourable environment for such operations, in particular with regard to the international commitments of Member States in this area, and concerning standardisation and the promotion of the full use of satellite technologies to the best advantage of Europe's communication system.

II. The Satellite Scene in Europe

1. The General Environment

Telecommunications satellites were originally conceived for the establishment and enhancement of international communications, and this is still their main application. Even where satellites are used for *national* services, since satellite beams cannot be shaped to follow national boundaries exactly, the regulation of satellite communications, and the co-ordination of frequencies used by these satellites, are issues going beyond the purview of national legislative or administrative systems.

Frequency bands for satellite services are allocated by World Administrative Radio Conferences (WARC's) and Regional Administrative Radio Conferences (RARC's). Use of frequencies within these bands is co-ordinated and administered by the International Frequency Registration Board, a body of the International Telecommunications Union (ITU), both internationally and with regard to the Member States of the Community. For the purposes of frequency allocation at WARC's and RARC's, civil satellite services are mainly divided into fixed, mobile, broadcasting and radiodetermination services. At the time when this division was made, it reflected the fact that the different services were provided by different organisations: fixed services by telecommunications organisations, mobile services by international consortia, and broadcast services by broadcasting authorities (though often through earth stations operated by telecommunications organisations).

Historically, the Radio Regulations of the International Telecommunications Union provide definitions of these categories, which are called the Fixed-Satellite Services (FSS), the Broadcasting-Satellite Services (BSS), the Mobile-Satellite Services (MSS), and the Radiodetermination-Satellite Services (RDSS) (see Glossary). However, with current rapid technological development, these originally clear distinctions are becoming more and more blurred, for example between Fixed Satellite Services and Broadcast Satellite Services and between Mobile Satellite Services and Radio Determination Satellite Services (see chapter III.).

The general development of satellite communications at the international level has been characterised by the establishment of INTELSAT - the International Telecommunications Satellite Organisation ; INMARSAT - the International Maritime Satellite Organisation ; and the European Telecommunications Satellite Organisation, EUTELSAT.

1.1 INTELSAT and INMARSAT

INTELSAT, the International Telecommunications Satellite Organisation, was established in 1964 by 11 countries; it now has 119 members and provides international telephony, data and video (point-to-point) services as well as in certain cases, television broadcast services in the fixed satellite service (FSS) frequency band. INTELSAT's governing charter is a 1973 intergovernmental convention known as the INTELSAT Agreement signed by the member governments of the organisation. This is supplemented by an Operating Agreement, signed mostly by the telecommunications organisations of the member countries as appointed by the national governments⁸.

The INTELSAT Agreement, inter alia, binds national governments which sign it, not to establish, acquire or utilise other satellite systems without (a) performing "technical co-ordination" with the INTELSAT system to avoid mutual interference, and (b) proving that the separate system and services will not cause "economic harm" to INTELSAT (the so-called Article XIV procedure). The second proviso aims at limiting competition from separate systems and services which are considered by INTELSAT a potential threat to its revenues.

INTELSAT's turnover in 1989 was 480 million ECU.

All Member States of the Community are members of INTELSAT. The ownership share of Community Member States in INTELSAT was 28.2 % as at 1 March 1990.

⁸ Some members have created special organisations for representing them as signatories to the international satellite organisations : the United States has created COMSAT ; Italy has created TELESPAZIO.

The only Eastern European members, Yugoslavia and Romania have 0.20% and 0.05 % respectively and other European countries account for a further 3.4 %. As far as provision of the actual satellites for the system is concerned, European manufacturers have never succeeded in becoming the prime contractor for any INTELSAT satellite series, although European companies have been involved as subcontractors to US manufacturers, notably in the INTELSAT VII series now being developed.

INMARSAT, the International Maritime Satellite Organisation, was established in 1979 by an intergovernmental Agreement; it now has 61 Member States. Operations are carried out by the designated signatories (the telecommunications organisations⁹) of the member states. Modifications to the original INMARSAT convention allow it to operate land mobile and aeronautical mobile services in addition to maritime mobile services, all using the Mobile-Satellite Services (MSS) frequency band around 1.5 - 1.6. GHz, the so called L-band.

INMARSAT's turnover in 1989 was 98.4 million ECU.

With the exception of Ireland and Luxembourg, all Member States of the Community are members of INMARSAT. European states have made a major contribution to the development of this service - almost 52 % of the shareholdings in INMARSAT are held by authorities of European states. The Community Member States investment shares total about 34 percent. MARECS satellites, developed in cooperation with European industry by the European Space Agency (ESA), are currently used by INMARSAT (one as a prime satellite for the Atlantic Ocean Region, a second as a back-up in the Pacific). In addition, British Aerospace heads the consortium constructing the INMARSAT second generation satellites, scheduled to come into operation in 1990. The overall European industrial content of this contract is some 60 percent. INMARSAT has issued its Request for Tenders to industry for the third generation of satellites at the beginning of October 1989, calling for availability of these satellites in 1993.

⁹ see 8)

1.2 EUTELSAT

EUTELSAT, the European Telecommunications Satellite Organisation, is an intergovernmental organisation with members from 28 European countries, including all member countries of the European Conference of Postal and Telecommunications Administrations, the CEPT. Recently, Poland and Romania have become members ; discussions are continuing with other Eastern European countries.

EUTELSAT provides and operates telecommunications satellites for telephony, data and video services within Europe, in the Fixed-Satellite-Service (FSS) frequency band. The EUTELSAT system has undergone the co-ordination process outlined above, *i.e.* it has proven that it will not cause significant economic harm to INTELSAT. In addition, Article XVI of the EUTELSAT convention foresees technical co-ordination and "economic harm" co-ordination similar to Article XIV of the INTELSAT convention for satellite systems offering services in Europe.

While the original rationale for EUTELSAT was the provision of international telephony within Europe, the take-up of this service has proved slow, initially due to the extensive terrestrial microwave networks, and latterly because of the growing availability of fibre optic cable. On the other hand, a considerable market has developed for television distribution using the FSS frequency band rather than frequencies designated for broadcasting. EUTELSAT now derives nearly 75% of its revenues from television distribution.

The members of EUTELSAT are mostly the national Telecommunications Organisations¹⁰ which have been designated generally by the member states as signatories to the Operating Agreement. Under the terms of this Agreement, it can only rent space segment to its signatories. With the exception of the European Broadcasting Union (EBU), other organisations wishing to set up a satellite service using EUTELSAT space segment are obliged to purchase it from their national signatory.

EUTELSAT's turnover in 1989 was 100 MECUs.

¹⁰ For some smaller non-EC countries, the Governments are signatories such as Monaco, Vatican City, Lichtenstein, San Marino, and Malta. See Footnote 8. concerning Italy.

All Member States of the Community are members of EUTELSAT. The EC Member States have an investment share totalling 88.0 percent. EUTELSAT's other 15 signatories control the remaining 12.0 percent of the investment share. As in the other two organisations, each year the investment share per signatory is calculated on the basis of their percentage of traffic carried over the satellites. The satellites for the EUTELSAT second generation are currently being developed by a European consortium, under prime contractorship of Aerospatiale. The first of these satellites has been launched successfully in August 1990.

An overview of European investment shares and Community signatories to the agreements is given in Fig. 1.

