

## COUNCIL RECOMMENDATION

of 25 June 1987

on the coordinated introduction of public pan-European cellular digital land-based mobile communications in the Community

(87/371/EEC)

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 235 thereof,

Having regard to the proposal from the Commission <sup>(1)</sup>,

Having regard to the opinion of the European Parliament <sup>(2)</sup>,

Whereas Council Regulation 84/549/EEC <sup>(3)</sup> calls for the introduction of services on the basis of a common harmonized approach in the field of telecommunications;

Whereas the resources offered by modern telecommunications networks should be utilized to the full for the economic development of the Community;

Whereas mobile radio services are the only means of contacting users on the move and the most efficient means for those users to be connected to the public telecommunications networks;

Whereas the land-based mobile communications systems currently in use in the Community are largely incompatible and do not allow users on the move in vehicles, boats, trains or on foot throughout the Community, including inland or coastal waters to reap the benefits of European-wide services and European-wide markets;

Whereas the change-over to the second generation cellular digital mobile communications system will provide a unique opportunity to establish truly pan-European mobile communications;

Whereas the European Conference of Postal and Telecommunications administrations (CEPT) has set up a special Working Group, referred to as GSM (Groupe Spécial Mobile), for planning all system aspects of a second-generation cellular mobile radio infrastructure;

Whereas such a future system, offering both voice and data services, is to be based on digital technique, thereby facilitating compatibility with the general digital environment that will involve with the coordinated introduction of the Integrated Services Digital Network (ISDN) in accordance with recommendation 86/659/EEC <sup>(4)</sup>;

Whereas a coordinated policy for the introduction of a pan-European cellular digital mobile radio service will

make possible the establishment of a European market in mobile and portable terminals which will be capable of creating, by virtue of its size, the necessary development conditions to enable undertakings established in Community countries to maintain and improve their presence on world markets;

Whereas it is necessary to work out rapidly all agreements necessary to allow unrestricted access to mobile communications and free circulation of mobile terminals throughout the Community for the European user;

Whereas the rapid implementation of Council Directive 86/361/EEC of 24 July 1986 on the initial stage of the mutual recognition of type approval for telecommunications terminal equipment <sup>(5)</sup> will make an important contribution towards this goal;

Whereas consideration should be given to Council Directive 83/189/EEC of 28 March 1983 laying down a procedure for the provision of information in the field of technical standards and regulations <sup>(6)</sup> and the Council Decision 87/95/EEC of 22 December 1986 on standardization in the field of information technology and telecommunications <sup>(7)</sup>, and to any other proposal that the Commission may make;

Whereas it is appropriate to make use of the potential of the Community's existing financial instruments in order to promote the development of Community's infrastructure;

Whereas special attention should be paid to the urgent requirement of certain users for pan-European land-based communications;

Whereas the Commission will in the future submit other proposals in the field of mobile communications, including radio-paging systems;

Whereas the implementation of such a policy will lead to closer cooperation, at Community level, between the telecommunications industry, on the one hand, and the telecommunications administrations and the recognized private operating agencies offering public mobile telecommunications services, hereinafter referred to as 'telecommunications administrations' on the other;

<sup>(1)</sup> OJ No C 69, 17. 3. 1987, p. 5.

<sup>(2)</sup> OJ No C 125, 11. 5. 1987, p. 159.

<sup>(3)</sup> OJ No L 298, 16. 11. 1984, p. 49.

<sup>(4)</sup> OJ No L 382, 31. 12. 1986, p. 36.

<sup>(5)</sup> OJ No L 217, 5. 8. 1986, p. 21.

<sup>(6)</sup> OJ No L 109, 26. 4. 1983, p. 8.

<sup>(7)</sup> OJ No L 36, 7. 2. 1987, p. 31.

Whereas a favourable opinion has been delivered by the Senior Officials Group on Telecommunications (SOG-T), according to which the detailed recommendations drawn by the Analysis and Forecasting Group (GAP) provide a strategic basis for the development of public mobile communications in the Community enabling European users on the move to communicate efficiently and economically;

Whereas favourable opinions on these recommendations have been delivered by the telecommunications administrations, by the European Conference of Postal and Telecommunications Administrations (CEPT) and by telecommunications equipment manufacturers in the Member States;

Whereas the envisaged measures will allow the economic benefit and rapidly increasing market potential of public mobile communications to be fully realized in the Community;

Whereas the Treaty has not provided the necessary powers, other than those of Article 235,

HEREBY RECOMMENDS:

1. that the telecommunications administrations implement the detailed recommendations concerning the coordinated introduction of public pan-European cellular digital land-based mobile communications in the Community as described in the Annex;
2. that, in so doing, they give special consideration to:
  - (a) the choice of the transmission system and network interfaces;
  - (b) the time schedule set out in the Annex;
  - (c) the start of service at the latest from 1991 onwards, with geographical coverage and penetration objectives compatible with commercial strategies;
3. that the telecommunications administrations continue the cooperation within the European Conference of Postal and Telecommunications Administrations (CEPT), particularly concerning the objectives and time schedule set out in the Annex for the completion of the specifications of the pan-European cellular digital mobile communications system;
4. that the telecommunications administrations plan for a gradual evolution from any existing public mobile radio systems to the pan-European cellular digital mobile communications system so as to ensure a transition which meets the needs of users, telecommunications administrations and undertakings established within Community countries;
5. that Member State Governments and telecommunications administrations rapidly complete the technical arrangements necessary to allow unrestricted access to cellular digital mobile communications;
6. that the Community's financial instruments take this recommendation into account within the framework of their interventions, particularly as regards investments required for the implementation of the pan-European cellular digital mobile communications system and that the Community's technological research and development programmes do likewise as regards the development of the required technological base;
7. that Member State Governments invite the telecommunications administrations to carry out this recommendation;
8. that Member State Governments inform the Commission at the end of each year, from the end of 1987 onwards, of the measures taken and problems encountered in the course of implementing this Recommendation. The progress of work will be examined by the Commission with the Senior Officials Group on Telecommunications (SOG-T) set up by the Council on 4 November 1983.

Done at Luxembourg, 25 June 1987.

*For the Council*  
*The President*  
H. DE CROO

## ANNEX

**1. General requirements**

The future pan-European cellular digital mobile communications system should fulfil the following general requirements:

- be suitable for use in the 890-915 and 935-960 MHz frequency bands to be made available for the pan-European cellular digital mobile communications system;
- permit a traffic flow (measured in E/KM<sup>2</sup>/MHz) greater than, or equal to, existing networks, bearing in mind the scarcity of the bandwidth resource allowed for these systems;
- provide the user with a voice transmission quality at least equal to that of the existing systems;
- allow for efficient use of hand-held terminals by encouraging competition amongst manufacturers;
- to be sufficiently flexible to facilitate the introduction of new services related to ISDN.

The cost of the system should be considered in terms of the cost of the fixed infrastructure to be met by the telecommunications administrations, taking into account both urban and rural areas, and the cost of the mobile equipment. All these costs should be within affordable limits and in any case must not exceed the cost of existing public mobile telephone systems working in the 900 MHz band. Since the cost of the mobile communication equipment will constitute the main portion of the total cost, it is preferable for the mobile equipment cost (for quantities in excess of 100 000) to be lower than that for mobile equipment used in existing public mobile telephone systems working in the 900 MHz band.

**2. Choice of transmission system**

The transmission mode for the pan-European mobile system should be digital. The basis for the final choice of the technical option common to all the Member States (radio subsystem multiple access method) within the digital mode was established by the telecommunications administrations in May 1987, on the basis of work carried out by CEPT (European Conference of Postal and Telecommunications Administrations) and particularly its special group for mobile communications, referred to as GSM (Groupe Spécial Mobile).

**3. Network architecture**

The principles of the network structure and the definition and allocation of functions between the various system components — Mobile Stations (MS), Base Stations (BS), and Mobile Switching Centres (MSC) — should be defined by the middle of 1987. In the course of this work, the appropriate interfaces between the various system components (MS-BS-MSC) should be completely defined for all Open Systems Interconnections Standards (OSI) layers applicable to the relevant services, and for all applications using those interfaces (call processing functions, maintenance, etc.). The system must be able to support geographically co-located cellular digital mobile radio operators.

**4. Mobile interfaces to be specified in detail by the end of 1987**

- (a) S reference point, with B (N Kbits/s) + D (N' Kbits/s) structure (N and N' to be defined);
- (b) Interface between MS and BS;
- (c) Interface between BS and MSC.

A minimum set of man/machine interface specifications (control procedures) should be established.

**5. Mobile services to be specified in detail by the end of 1987 and available for provision in all Member States starting from 1991, with hand-over and national/international roaming**

Although, initially, voice telephony capabilities will constitute the most important service required, the mobile system must nevertheless be open to an overall evolution towards ISDN services<sup>(1)</sup>. Therefore, the following mobile services should be specified in detail by the end of 1987 and available in all Member States starting from 1991:

(a) *Bearer services*

- Non-transparent bearer service for speech;
- Transparent bearer service for data transmission at N Kbits/s switched in the network at 64 Kbits/s (N to be defined).

<sup>(1)</sup> OJ No C 157, 24. 6. 1986, p. 3.

(b) *Basic services*

- Hand-over ;
- National/international roaming.

(c) *Teleservices*

Telephony at 3,1 kHz (corresponding to N Kbits/s on B channel. N is to be defined).

(d) *Supplementary services*

- Calling line identification ;
- Advice of call duration ;
- Speech encryption.

This list may be added to by CEPT.

**6. Signalling**

User access signalling (subscriber signalling) should be defined along the principles of the existing CEPT recommendations for ISDN, and should be able to permit supplementary services of ISDN/PSTN.

Network and inter-network signalling process should be defined in the framework of the SS No 7 in such a way that international roaming and hand-over facilities are safeguarded.

**7. Tariff considerations**

The telecommunications administrations are invited to consider within the CEPT framework the following tariff principles :

- given the scarcity of frequency resources, the service should be charged basically according to the duration of the radio channel use ;
- the tariffs should take into account the current trend towards less distance dependence.

By the end of 1987, the basic framework of charging principles should be identified, so that the network implications can be identified and resolved in an appropriate manner.

**8. Geographical coverage**

The introduction date of the pan-European cellular digital mobile communications system should be 1991 at the latest. Major urban areas should be covered by 1993 at the latest. The main links between these areas should be covered by 1995 at the latest.

Further, the telecommunications administrations should collaborate in studying these respective priorities for coverage, in order to stimulate the maximum pan-European traffic as early as possible. This should take into account the needs of users in vehicles on major European routes, and the needs of air travellers located between city centres and international airports.

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