

# Memorandum of Understanding for the implementation of a European research project on digital land mobile radio communications (COST Project 207)

The Signatories to this Memorandum of Understanding, declaring their intention to take part in a European research project on digital land mobile radio communications have reached the following understandings:

## *Section 1*

1. The Signatories intend to cooperate in a project to promote research into digital land mobile radio communications (hereinafter referred to as the 'Project').

2. The main objective of the Project is to coordinate research activities already underway in Europe and to stimulate new studies on well-defined aspects of digital land mobile radio communications. Results are expected to support the envisaged European public system for the 1990s and to enhance European expertise for further generation systems.

3. The Signatories hereby declare their intention of carrying out the Project jointly, in accordance with the general description given in Annex II, adhering as far as possible to a timetable to be decided by the Management Committee referred to in Annex I.

4. The Project will be carried out through concerted action, in accordance with the provisions of Annex I.

5. The overall value of the activities of the Signatories under the Project is estimated at approximately 500 000 ECU at 1983 prices.

6. The Signatories will make every effort to ensure that the necessary funds are made available under their internal financing procedures.

## *Section 2*

Signatories intend to take part in the Project in one or several of the following ways:

(a) by carrying out studies and research in their technical services or public research establishments (hereinafter referred to as 'public research establishments');

(b) by concluding contracts for studies and research with organizations (hereinafter referred to as 'research contractors');

(c) by contributing to the provision of a Secretariat and/or other coordinatory services or activities necessary for the aims of the Project to be achieved;

(d) by making information on existing relevant research, including all necessary basic data, available to other Signatories;

(e) by arranging for inter-laboratory visits and by cooperating in a small-scale exchange of staff in the later stages.

## *Section 3*

1. This Memorandum of Understanding will take effect for three years on its signing by at least four Signatories.

2. This Memorandum of Understanding may be amended in writing at any time by arrangement between the Signatories.

3. A Signatory which intends, for any reason whatsoever, to terminate its participation in the Project will notify the Secretary-General of the Council of the European Communities of its intention as soon as possible, preferably not later than three months beforehand.

4. If at any time the number of Signatories falls below four, the Management Committee referred to in Annex I will examine the situation which has arisen and will consider whether or not this Memorandum of Understanding should be terminated by decision of the Signatories.

#### *Section 4*

1. This Memorandum of Understanding will, for a period of six months from the date of the first signing, remain open for signing, by the governments which took part in the Ministerial Conference held in Brussels on 22 and 23 November 1971 and also by the European Communities.

The governments referred to in the first subparagraph and the European Communities may take part in the Project on a provisional basis during the abovementioned period, even though they may not have signed this Memorandum of Understanding.

2. After this period of six months has elapsed, applications to sign this Memorandum of Understanding from the governments referred to in paragraph 1 or from the European Communities will be decided upon by the Management Committee referred to in Annex I, which may attach special conditions thereto.

3. Any Signatory may designate one or more competent public authorities or bodies to act on its behalf in respect of the implementation of the Project.

#### *Section 5*

This Memorandum of Understanding is of an exclusively recommendatory nature. It will not create any binding legal effect in public international law.

#### *Section 6*

1. The Secretary-General of the Council of the European Communities will inform all Signatories of the signing dates and date of entry into effect of this Memorandum of Understanding and will forward to them all notices which he has received under this Memorandum of Understanding.

2. This Memorandum of Understanding will be deposited with the General Secretariat of the Council of the European Communities. The Secretary-General will transmit a certified copy to each of the Signatories.

Done at Brussels on the fourteenth day of March in the year one thousand nine hundred and eighty-four.

## ANNEX I

### Coordination of the Project

#### CHAPTER I

1. A Management Committee (hereinafter referred to as 'the Committee') will be set up, composed of not more than two representatives for each Signatory. Each representative may be accompanied by such experts or advisers as he or she may need.

The governments which took part in the Ministerial Conference held in Brussels on 22 and 23 November 1971 and the European Communities may, in accordance with the second paragraph of Section 4 (1) of the Memorandum of Understanding, participate in the work of the Committee before becoming Signatories to the Memorandum without, however, having the right to vote.

When the European Communities are not a Signatory to the Memorandum of Understanding, a representative of the Commission of the European Communities may attend Committee meetings as an observer.

2. The Committee will be responsible for coordinating the Project and, in particular, for making the necessary arrangements for:

- (a) the choice of research topics on the basis of those provided for in Annex II, including any modifications submitted to Signatories by the competent public authorities or bodies; any proposed changes to the Project framework will be referred for an opinion to the COST Technical Committee 'Telecommunications';
- (b) advising on the direction which work should take;
- (c) drawing up detailed plans and defining methods for the different phases of execution of the Project;
- (d) coordinating the contributions referred to in subparagraph (c) of Section 2 of the Memorandum of Understanding;
- (e) keeping abreast of the research being done in the territory of the Signatories and in other countries;
- (f) liaising with appropriate international bodies;
- (g) exchanging research results among the Signatories to the extent compatible with adequate safeguards for the interests of Signatories, their competent public authorities or bodies and research contractors in respect of industrial property rights and commercially confidential material;
- (h) drawing up the annual interim reports and the final report to be submitted to the Signatories and circulated as appropriate;
- (i) dealing with any problem which may arise out of the execution of the Project, including those relating to possible special conditions to be attached to accession to the Memorandum of Understanding in the case of applications submitted more than six months after the date of the first signing.

3. The Committee will establish its rules of procedure.

4. The Secretariat of the Committee will be provided at the invitation of the Signatories by either the Commission of the European Communities or one of the Signatory States.

#### CHAPTER II

1. Signatories will invite public research establishments or research contractors in their territories to submit proposals for research work to their respective competent public authorities or bodies. Proposals accepted under this procedure will be submitted to the Committee.

2. Signatories will request public research establishments or research contractors, before the Committee takes any decision on a proposal, to submit to the public authorities or bodies referred to in paragraph 1 notification of previous commitments and industrial property rights which they consider might preclude or hinder the execution of the projects of the Signatories.

### CHAPTER III

1. The Signatories will request their public research establishments or research contractors to submit periodical progress reports and a final report.

2. The progress reports will be distributed to the Signatories only, through their representatives on the Committee. The Signatories will treat these progress reports as confidential and will not use them for purposes other than research work. The final reports on the results obtained will have much wider circulation, covering at least the Signatories' public research establishments or research contractors concerned.

### CHAPTER IV

1. In order to facilitate the exchange of results referred to in Chapter I, paragraph 2, (g), and subject to national law, Signatories intend to ensure, through the inclusion of appropriate terms in research contracts, that the owners of industrial property rights and technical information resulting from work carried out in implementation of that part of the Project assigned to them under Annex II (hereinafter referred to as 'the research results') will be under an obligation, if so requested by another Signatory (hereinafter referred to as 'the applicant Signatory'), to supply the research results and to grant to the applicant Signatory or to a third party nominated by the applicant Signatory a licence to use the research results and such technical know-how incorporated therein as is necessary for such use if the applicant Signatory requires the granting of a licence for the execution of:

- (a) work in respect of the Project;
- (b) research and development work within the framework of the applicant Signatory's projects in the same field;
- (c) research and development work within the framework of any associated European project undertaken subsequently and in which all or several of the Signatories may be prepared to take part.

Such licences will be granted on fair and reasonable terms, having regard to commercial usage.

2. Signatories will, by including appropriate clauses in contracts placed with research contractors, provide for the licence referred to in paragraph 1 to be extended on fair and reasonable terms, having regard to commercial usage, to previous industrial property rights and to prior technical know-how acquired by the research contractor insofar as the research results could not otherwise be used for the purpose referred to in paragraph 1.

Where a research contractor is unable or unwilling to agree to such extension, the Signatory will submit the case to the Committee, before the contract is concluded; thereafter, the Committee will state its position on the case, if possible after having consulted the interested parties.

3. Signatories will take any steps necessary to ensure that the fulfilment of the conditions laid down in the present Chapter will not be affected by any subsequent transfer to rights to ownership of the research results. Any such transfer will be notified to the Committee.

4. If a Signatory terminates its participation in the Project, any rights of use which it has granted, or is obliged to grant, to, or has obtained from, other Signatories in application of the Memorandum of Understanding and concerning work carried out up to the date on which the said Signatory terminated its participation will continue thereafter.

5. The provisions of paragraphs 1 to 4 will continue to apply after the period of operation of the Memorandum of Understanding has expired and will apply to industrial property rights as long as these remain valid, and to unprotected inventions and technical know-how until such time as they pass into the public domain other than through disclosure by the licensee.

## ANNEX II

### General description of the work planned for the Project

#### 1. Introduction

Public and private land mobile radio systems are experiencing a very rapid expansion with an increasing degree of sophistication in most countries.

Today public systems using the 160 and 450 MHz frequency bands have been planned and operate generally on a national basis. Only in a few cases does the same system serve more than one country.

The possibility of using one system throughout Europe and the advantages to both the manufactures and subscribers of a larger scale market have already led the CEPT to establish the 'mobile special group' (GSM) with the task of producing guidelines and specifications for a harmonized European public mobile communications system for the 1990s in the 900 MHz frequency band. The basic system parameters should be defined, at the latest, by December 1986. However, the GSM will not attempt to perform all the necessary activities within the group. On the contrary, the group will try to identify all relevant activities outside the group, in administrations, research bodies, etc., with the aim of coordinating with those activities in order to obtain the best utilization of the resources.

In this context it appears that the COST framework is particularly suitable to coordinate research activities on well defined subjects to produce results of direct use for the envisaged European system. To significantly influence the basic parameters of the GSM system the COST results must be available during 1985 or by mid-1986 at the latest.

It is not yet possible to state whether the GSM system will have digital or analogue speech transmission, but it is practically certain that the signalling will be on a digital basis.

Consequently, considering that knowledge of analogue transmission is well advanced, COST activities should concentrate on digital aspects. The results obtained are expected to be in any case useful for the enhancement of European expertise for further generations of mobile communications systems.

The proposal for a COST project has been formulated taking into account the views of the GSM regarding the subjects appropriate for study within the COST framework.

#### 2. Objective of the Project

The objective of the Project is to coordinate research activities already underway in Europe and to stimulate new studies on well defined aspects of digital land mobile radio communications. Results are expected to support the envisaged European public system for the 1990s and to enhance European expertise for further generation systems.

#### 3. Schedule of the activities of the Project

The Project is envisaged to last three years during which results of direct use to the GSM will be produced.

During the Project the possibilities and advantages of a follow-on project, directed towards exploring the practicality of other land mobile communication systems and expanding European expertise in the field, will be examined.

#### **4. Technical programme**

The technical programme of the Project, detailed in the following sub-sections, has been defined taking into account the following factors:

- (a) that some modulation techniques and baseband processes may be especially relevant to mobile radio;
- (b) that acceptable communication relies upon knowledge of the interrelation between topography and radio transmission;
- (c) and the precise studies to be performed on each topic will be influenced by the foreseen characteristics of the CEPT/GSM system or other systems.

##### *4.1. Propagation*

- (a) Collation of data, preferably from modulated transmission, related to topography.
- (b) Development of compatible methods and procedures for predicting propagation characteristics from topographical data for both wanted and interfering signals. Full use of such results will require harmonized data bases.
- (c) Development of narrowband and wideband fading simulators.

##### *4.2. Modulation*

Study and demonstration of optimum modulation techniques taking into account e.g. spectrum efficiency, channel capacity, performance requirements, radio channel characteristics and cost factors.

##### *4.3. Baseband processes*

Study and demonstration for the mobile radio environment of:

- (a) Optimum speech encoding processes, taking into account that these processes may differ in the two directions of transmission;
- (b) Methods for providing communication privacy;
- (c) Signalling and data transmission techniques.

#### **5. Envisaged cost of the activities in the Project**

Much European investment has already been committed to research activities. Consequently the main objective of this Project is to make full use of existing resources. However, Signatories may wish to make additional funds available in order to increase their participation in the Project.

In all cases national funds should be made available for the work of the Committee. In particular this includes:

- (a) Coordination of national efforts;
- (b) Preparation of contributions of the Committee meetings;
- (c) Travel expenses.

Average total cost per Signatory, for the work of the Committee, is estimated to be 15 000 ECU for travel expenses plus 1.5 man-years for a three-year period of the Project (assuming 40 000 ECU per man-year, it comes to  $0.5 \times 40\,000 = 20\,000$  ECU per year. For three years the amount is  $20\,000 \times 3 + 15\,000 = 75\,000$  ECU per Signatory).

## **6. Participation in the project**

- 6.1. The following countries have expressed an interest in participating in the Project: France, Germany, Italy, Netherlands, U.K., Finland and Sweden.
- 6.2. The Management Committee should invite a representative of CEPT/GSM to take part in the Project, considering the present role of this group in producing guidelines and specifications for a harmonized European public mobile communication system for the 1990s.



**Memorandum of Understanding  
for the implementation of a  
European research project on  
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(COST Project 207)**

Date of entry into force: 13.4.1984

Duration 12.4.1987

Contracting Parties	Date of signing	Date of entry into force
Belgium	14. 3.1984	14. 3.1984
Germany (FR of)	23. 5.1984	23. 5.1984
France	7. 6.1984	7. 6.1984
Italy	25. 7.1984	25. 7.1984
Netherlands	14. 3.1984	14. 3.1984
United Kingdom	14. 3.1984	14. 3.1984
Austria	14. 3.1984	14. 3.1984
Switzerland	15.10.1984	15.10.1984
Finland	13. 4.1984	13. 4.1984
Sweden	5. 4.1984	5. 4.1984