



Treaty Series No. 12 (1976)

## Arrangement

between certain Member States of the European Space  
Research Organisation and the European Space  
Research Organisation

concerning the Execution of a  
Communication Satellite Programme

Neuilly-sur-Seine, 1 June–21 September 1973

[The Arrangement entered into force on 21 September 1973]

*Presented to Parliament  
by the Secretary of State for Foreign and Commonwealth Affairs  
by Command of Her Majesty  
March 1976*

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**ARRANGEMENT  
BETWEEN CERTAIN MEMBER STATES OF THE EUROPEAN  
SPACE RESEARCH ORGANISATION AND THE EUROPEAN SPACE  
RESEARCH ORGANISATION CONCERNING THE EXECUTION OF  
A COMMUNICATION SATELLITE PROGRAMME**

**Preamble**

The Government of the Federal Republic of Germany, the Kingdom of Belgium, the Kingdom of Denmark, the French Republic, the Italian Republic, the Kingdom of the Netherlands, the United Kingdom of Great Britain and Northern Ireland, the Kingdom of Sweden and the Swiss Confederation (hereinafter referred to as "the Participants"), being Governments of States parties to the Convention for the establishment of a European Space Research Organisation opened for signature in Paris on 14 June 1962<sup>(1)</sup> (hereinafter referred to as "the Convention"), and the European Space Research Organisation (hereinafter referred to as "the Organisation"),

Having regard to the objectives elaborated after consultation with the European Conference of Postal and Telecommunications Administrations (CEPT) and the European Broadcasting Union (EBU) in accordance with the Resolutions of the Conference of Posts and Telecommunication Ministers (Brussels, April 1970 and Vienna, April 1972), namely to make available to the Postal and Telecommunications Administrations (hereinafter referred to as "the users") as from 1980 reliable space links capable of handling part of the intra-European public telecommunications traffic and the exchange of television programmes,

Considering that the attainment of these objectives will call for major technological efforts that will assure the progress of European industry and enable it to participate more competitively in the development of other space communications systems,

Desiring, to this end, to carry out a European programme comprising the design, development, construction and setting-up of the experimental and pre-operational space segment of a space communications system and making reliable operational satellites available to users, and furthermore to develop in Europe the technology in this field,

Having noted the completion of the preparatory Phase of the said programme, and recalling the decision taken at the 44th Session of the Council of the Organisation, held on 20 December 1971, to undertake the succeeding experimental Phase (ESRO/C/XLIII/Res. 3 (Final) Chapter I.3),

Having regard to the Declaration dated 12 April 1973 made by the representatives on the Council of the Organisation of the Governments referred to above,

Having regard to the Resolution adopted by the Council of the Organisation at its 56th Session, concerning the acceptance of the request to execute this programme within the framework of the Organisation,

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<sup>(1)</sup> Treaty Series No. 56 (1964), Cmnd. 2489.

Having regard to the Memorandum of Understanding between the Organisation and the Department of Communications of Canada concerning their co-operation in advanced space technology, signed on 18 May 1972,

Have agreed as follows:

#### ARTICLE 1

The Participants shall undertake a programme, broken down into Phases, whose objectives shall be to design, develop, construct and set up the experimental and pre-operational space segment of a space communications system matching the objectives of the users, and to make reliable operational satellites available to the users on completion of the programme. The elements of this space segment are described in Annex A to the present Arrangement.

#### ARTICLE 2

1. The programme referred to in Article 1 above shall be broken down into two Phases. It was preceded by a preparatory programme definition Phase (Phase 1), already completed. These two Phases—described in detail in Annex A to this Arrangement—are as follows:

- (a) A technological and experimental Phase, during which the communication techniques and the spacecraft technologies required for the programme will be developed on the ground and tested aboard experimental and pre-operational satellites (Phase 2). This Phase may be reviewed, at any appropriate moment during its execution, with a view to the inclusion of a sub-Phase (2bis) comprising further work on advanced techniques and specialised studies.
- (b) A Phase devoted to the development of two operational flight units together, if necessary, with the launching, and evaluation in orbit, of a prototype model, and on its completion to making these operational flight units available to the potential users, one of them in orbit and the other on the ground, on terms to be agreed between the Participants and the users (Phase 3).

2. The decisions to proceed to sub-Phase 2bis and to Phase 3 shall be taken in conformity with the provisions of Article 5 below.

#### ARTICLE 3

1. The Organisation shall, under Article VIII of the Convention, execute the programme referred to in Article 1 above, in conformity with the timetable and other provisions set out in Annex A to this Arrangement.

2. Except where otherwise provided in this Arrangement, the Organisation shall execute the programme in conformity with the rules and procedures in force in the Organisation.

#### ARTICLE 4

1. A Programme Board, composed of the representatives of the Participants, shall be responsible for the programme and shall take all decisions relating to it, in conformity with the provisions of this Arrangement.

2. For matters affecting this and another programme of the Organisation, the Programme Board shall be advisory to the Council, to which it will on such matters make all necessary recommendations.

3. The Programme Board shall also be responsible for maintaining close links with the national and international telecommunication agencies, so as to be in a position to respond to any reorientation of the operational objectives of the envisaged space segment; it shall define the rules for using the space segment of the Phase 2 for experimental and pre-operational purposes.

4. The Programme Board may establish such advisory bodies as it may deem necessary for the proper execution of the programme.

5. The decisions of the Programme Board shall be taken in conformity with the provisions of this Arrangement. Unless expressly provided otherwise, the voting rules laid down in the Convention and in the Rules of Procedure for the Organisation's Council shall apply *mutatis mutandis*.

#### ARTICLE 5

Decisions on the start, and precise content, of sub-Phase 2bis and of Phase 3 of the programme shall be taken by the Programme Board by a two-thirds majority, provided this majority represents at least two-thirds of the contributions to the programme. If no decision to proceed to Phase 3 can be arrived at in this way, those States that wish, nevertheless, to continue with the programme, shall consult among themselves and determine arrangements for such continuation. They shall report accordingly to the Council, which shall take any measures that may be required.

#### ARTICLE 6

1. The expenditure resulting from the execution of the programme by the Organisation under this Arrangement shall be met by the Participants, in accordance with the detailed provisions set out in Annex B to this Arrangement, and within the limits of the firm financial envelope for each Phase as determined in conformity with the provisions of the present Article.

2. The Participants agree to contribute to the financing of Phase 2 of the programme on the basis of a firm financial envelope of 115.1 million accounting units (at mid-1972 price levels), to which will be added a share of the Organisation's common and support costs currently estimated at 28 million accounting units.

3. As soon as possible during Phase 2 and once the conditions laid down in Article 5 above have been met, the Participants shall determine, by the majority defined in Article 5, a firm financial envelope for the execution of Phase 3.

4. The annual budgets relating to the programme shall be subject to the approval by the Programme Board by a two-thirds majority, within the relevant firm financial envelope.

#### ARTICLE 7

1. The Participants agree, in order that the firm financial envelope of a Phase may be revised in the event of changes in price levels, to apply the procedure in force in the Organisation at that time.

2. Where a firm envelope needs to be revised for reasons other than changes in price levels, the following provisions shall apply:

(a) If the cumulative over-runs of estimated costs to completion do not exceed 20% of the amount of the firm financial envelope of the Phase in progress, no Participant shall be entitled to withdraw from the programme and the Programme Board shall decide on the additional expenditure by a two-thirds majority.

(b) If the cumulative over-runs of estimated costs to completion exceed 20% of the amounts of the firm envelope in question, the Participants who so wish may withdraw from the programme subject to the provisions of Article 17. Those Participants that wish to continue the programme shall consult among themselves and determine the arrangements for such continuation. They shall report accordingly to the Council, which will take any necessary decision.

#### ARTICLE 8

Intellectual property rights arising from the execution of the programme, as well as access to technical information so arising, shall be reserved to the Participants but the Organisation shall have the right to make use of them free of charge for its activities as a whole.

#### ARTICLE 9

The Participants authorise the Organisation to conclude the necessary contracts for the execution of the programme in conformity with the Organisation's rules and procedures. However, in placing contracts and sub-contracts for the execution of this programme, preference shall be given, wherever possible, to execution of the work in the territories of the Participants, taking into consideration the Council's decisions in the matter of industrial policy and distribution of work.

#### ARTICLE 10

The Organisation, acting on behalf of the Participants, shall be the owner of the satellites developed under the programme, as well as of the facilities and equipment acquired up to the end of Phase 3 for its execution. Any transfer of facilities and equipment acquired shall be decided on by the Programme Board in consultation with the Council of the Organisation.

## ARTICLE 11

1. The Participants shall indemnify the Organisation in respect of any liability it may incur should its international responsibility be involved as a result of the execution of the programme.

2. Any compensation for damage received by the Organisation with respect to the programme shall be credited to the annual programme budgets referred to in Article 6, paragraph 4.

## ARTICLE 12

1. Any dispute which arises between two or more of the Participants, or between any of them and the Organisation, concerning the interpretation or the application of this Arrangement, and which cannot be settled by mutual consent, shall be submitted at the request of any party to the dispute to a single arbitrator to be appointed by the President of the International Court of Justice. The arbitrator may not be a national of a State which is party to the dispute nor be a permanent resident of such a State.

2. Those parties to the Arrangement which are not parties to the dispute shall have the right to join in the proceedings and the arbitrator's decision shall be binding on all the Participants and the Organisation, whether or not they have joined in the proceedings.

## ARTICLE 13

1. This Arrangement shall be open for signature by the Participants from 1 June 1973 to 21 September 1973.

2. The States shall become parties to this Arrangement:

—either by signature not subject to ratification or approval,

—or by depositing an instrument of ratification or approval with the Government of the French Republic if the Arrangement was signed subject to ratification or approval.

3. This Arrangement shall come into force<sup>(2)</sup> when it has been signed by the Organisation and when the aggregate contributions payable—on the basis of the scale set out in Annex B—by the States that have become parties to this Arrangement in accordance with paragraph 2 of this Article amount to two-thirds of the total contributions payable.

4. For the purpose of paragraph 3 of this Article, the deposit, with the depositary Government, of a declaration of intent to apply the Arrangement provisionally and to seek ratification or approval as soon as possible shall be considered as the deposit of an instrument of ratification or approval.

5. The Government of any Member State of the Organisation which has not signed the Arrangement by 21 September 1973 may become party

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<sup>(2)</sup> The Arrangement entered into force on 21 September 1973.

to it after it has come into force, provided the other Governments party to the Arrangement agree. The Government in question must deposit an instrument of accession with the Government of the French Republic.

6. Unless the Programme Board unanimously decides otherwise, a Government that becomes a party to this Arrangement after its entry into force shall pay a contribution equal to that which it would have paid if it had been a party to the Arrangement at the moment of its entry into force and this contribution shall be credited pro rata to the contributions of the Participants.

#### ARTICLE 14

The Government of a State that is not a Member of the Organisation may present a request to the Council of the Organisation to accede to the programme; a Council decision to grant such a request shall require unanimity and must be taken in agreement with the Programme Board, which shall unanimously determine the terms of accession.

#### ARTICLE 15

The Organisation shall notify the Participants, after consultation with the Programme Board, when the programme has been duly completed in accordance with the provisions of this Arrangement and this Arrangement shall expire upon receipt of such notification.

#### ARTICLE 16

The Participants may decide to cease the execution of the programme by a two-thirds majority representing also at least two-thirds of the contributions to the programme.

#### ARTICLE 17

1. A Participant wishing to withdraw under the terms of Article 5 and Article 7, paragraph 2 (b), of this Arrangement shall notify its withdrawal to the Organisation. This withdrawal shall take effect at the date of the notification, subject to the following provisions:

- (a) The withdrawing Participant shall be bound to pay in the manner agreed its contributions adopted under the current or previous annual budget(s).
- (b) The withdrawing Participant shall remain bound to pay its share of the payment appropriations corresponding to approved contract authority used under the budget for the current or previous financial year(s) and relating to any programme Phase whose execution is in progress.
- (c) The withdrawing Participant shall remain a member of the Programme Board until its obligations under (a) and (b) above have been fulfilled. It shall only have a right to vote on matters which are directly related to these obligations.

2. The withdrawing Participant shall retain the rights acquired up to the date on which its withdrawal takes effect. As regards actions and developments decided upon after its withdrawal, no further right or obligation shall arise in respect of that part of the programme to which it no longer contributes, unless and to the extent agreed otherwise between the remaining Participants and the withdrawing Participant. The provisions of Article XVII of the Convention of the Organisation shall apply *mutatis mutandis*.

3. Should a non-Member State which has acceded to the programme in accordance with the provisions of Article 14 of this Arrangement wish to withdraw from the programme, the provisions of this Article shall apply *mutatis mutandis*.

#### ARTICLE 18

Annexes A and B to this Arrangement form an integral part of it.

#### ARTICLE 19

1. This Arrangement may be reviewed at the request of a Participant or of the Organisation. Any amendments shall come into force when all parties have notified their approval to the depositary Government.

2. The Annexes to this Arrangement may be revised by the Programme Board in accordance with the provisions of the revision clauses of those Annexes.

#### ARTICLE 20

Upon entry into force of the Arrangement, the Government of the French Republic shall register it with the Secretariat of the United Nations, in accordance with Article 102 of the United Nations Charter.<sup>(3)</sup>

#### ARTICLE 21

The Government of the French Republic shall be the depositary of this Arrangement and shall notify the Participants and the Organisation of the date of entry into force of this Arrangement and any amendments thereto, and of all instruments of ratification, approval, accession and declaration of intent to apply the Arrangement provisionally.

In witness whereof the undersigned representatives, having been duly authorised thereto, have signed this Arrangement,

Done in Neuilly-sur-Seine, this twelfth day of April nineteen hundred and seventy-three in the English, French and German languages,<sup>(4)</sup> all three texts being equally authoritative, in a single copy, which shall be deposited in the archives of the Government of the French Republic, which shall transmit certified copies to each of the Participants and to the Organisation.

[For signatures and ratifications see page 16]

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<sup>(3)</sup> Treaty Series No. 67 (1946), Cmd. 7015.

<sup>(4)</sup> After the Arrangement has been registered with the United Nations, texts in French and German will appear in the United Nations Treaty Series, available through Agency Section, Her Majesty's Stationery Office, PO Box 569, London SE1 9NY—Telephone: 01-928 6977, ext. 410.



## ANNEX A

### 1. Objectives of the European Communication Satellite Programme

The programme shall prepare for the setting up in Europe of an operational space communication system. This system is intended to provide satellite links for a substantial part of the predicted telecommunications traffic in the 1980s to satisfy the expected requirements of the users. The design of the satellite shall be such as to meet its objectives at the lowest possible cost, allowance for other objectives only being permitted where no extra cost would be involved.

### 2. Description of the programme

The programme is divided into two Phases as follows:

- (a) A technological and experimental Phase, during which the communication techniques and the spacecraft technologies required for the programme will be developed on the ground and tested aboard experimental and pre-operational satellites (Phase 2).
- (b) A Phase devoted to the development of two operational flight units together, if necessary, with the launching, and evaluation in orbit, of a prototype model, and on its completion to making these operational flight units available to the potential users, one of them in orbit and the other on the ground, on terms to be agreed between the Participants and the users (Phase 3).

It was preceded by a preparatory programme definition Phase (Phase 1), which was completed in 1971.

#### 2.1. Phase 2 of the programme

The developmental and technological Phase (Phase 2), is intended to run from 1972 to 1978, culminating essentially in the orbiting at the end of 1976 of an experimental and pre-operational spacecraft and its subsequent in-orbit evaluation. The work to be carried out in this Phase is divided under the following headings:

- (a) Communication system,
- (b) Supporting technology,
- (c) Experimental satellites,
- (d) Studies of operational configuration.

##### 2.1.1. Communication system

The work in Phase 2 of the communication system will comprise:

- (a) overall system studies, covering *inter alia*, analysis of communication techniques such as PCM/PSK/TDMA (pulse code modulation/phase shift keying/time division multiple access), frequency re-use by polarisation diversification, space division multiple access, adaptive satellite radiated power, and on-board switching;

- (b) studies of transmission problems, such as impairment phenomena in the satellite repeater, interface problems at the earth stations;
- (c) propagation experiments, involving radiometric measurements for the provision of statistics on atmospheric attenuation, propagation measurements on terrestrial links for the study of depolarisation effects and measurements using satellite beacons to provide direct analysis of the anticipated phenomena;
- (d) earth segment studies, to be pursued in close collaboration with the users, to ensure that the overall satellite/earth segment system chosen is optimal.

### **2.1.2. Supporting technology**

This area of Phase 2 covers the development and qualification of critical items in the following areas:

- Communication technology;
- Structures and mechanisms;
- Thermal control;
- Attitude and orbit control;
- Energy conversion.

These critical items are those which are necessary for the development of the experimental and pre-operational satellites (CTS and OTS) of Phase 2, as well as those which, because of their long period of development, are necessary for the final execution of Phase 3.

### **2.1.3. Experimental and pre-operational satellites**

Phase 2 is to be completed by the in-orbit test of the components developed under the supporting technology phase, these in-orbit tests allowing:

- the qualification in orbit of the 11/14 GHz communication equipment;
- the qualification in orbit of the concept of a three-axis stabilised vehicle with orientable solar panels, and the equipment developed within the framework of the supporting technology programme and considered as critical;
- the evaluation of communication techniques proposed for the operational system in collaboration with the users.

Two satellites will be used for this experimental and pre-operational phase:

- Under the Memorandum of Understanding with the Department of Communications of Canada, ESRO-developed equipment will be incorporated in the Canadian Communications Technology Satellite, to be launched during 1975. The equipment to be flown is in the areas of communication technology (travelling wave tube amplifiers and parametric amplifiers) and of energy conversion (flexible solar array).

—The second and more important part of the experimental and pre-operational programme will be the orbiting, at the end of 1976, of an experimental and pre-operational Orbital Test Satellite (OTS).

This satellite is to be launched by a vehicle of the Delta 2914 class. In summary, the OTS will be a three-axis stabilised, three-year lifetime vehicle of modular conception, carrying sun-orientated solar panels; the communications capability will include 40 and 120-MHz bandwidth 20-W repeaters, with spotbeam and Eurobeam antenna coverage.

#### **2.1.4. Studies of operational configuration**

Within Phase 2 of the programme, studies of potential operational configurations will continue to be made, in liaison with the prospective users, to enable the optimum choice to be made in 1975–1976.

#### **2.1.5. Sub-Phase (2bis)**

Should the review of Phase 2 referred to in Article 2, paragraph 1 (a) of the Arrangement lead to the inclusion of a sub-Phase 2bis, this sub-Phase shall have as its aim to further advanced techniques and specialised studies in respect of possible operational satellite configurations.

### **2.2. Phase 3 of the programme**

Shortly before the completion of Phase 2 of the programme, the subsequent Phase of the programme, involving the development and construction of two flight units of the operational vehicle, is commenced.

The decision to commence Phase 3 is foreseen for 1975; taken in conjunction with the results of the experimentation in orbit, it is foreseen that 18 months of orbital data will be available at the time of the critical design reviews of the operational vehicle. Completion of Phase 3 is foreseen for 1980.

### **3. Timetable**

The tentative timetable is as follows:

—Phase 1—completed in 1971;

—Phase 2—technological development and subsequent in-orbit evaluation: 1972–1978. The development of the experimental and pre-operational vehicle is:

Phase A: September 1972–December 1972;

Phase B: April 1973–December 1973;

Phase C: January 1974–Early 1975;

Phase D: Early 1975–December 1976.

The launch of this vehicle is foreseen for end-December 1976.

—Phase 3—operational satellite development: 1975–1980 leading to operational configuration orbital operations outside Phase 3, from 1980 onwards.

#### 4. Revision clause

The provisions of this Annex may be revised by a unanimous decision of the Programme Board.

### ANNEX B

#### 1. Cost of the programme

The preparatory programme definition phase (Phase 1) was funded out of appropriations voted by the European Space Conference.

##### 1.1. Phase 2 of the programme

The firm financial envelope for Phase 2 of the programme is 115.1 MAU, expressed in mid-1972 prices. This amount corresponds to the overall direct expenditure for the period 1972–1978, estimated as follows:

*(In millions of accounting units, at mid-1972 prices)*

|  |       |     |       |
|--|-------|-----|-------|
| (a) Internal costs of the Organisation   | ...   | ... | 12.9  |
| (b) Communication system   | ...   | ... | 7.1   |
| (c) Supporting technology  | ...   | ... | 27.4  |
| (d) Direct expenditure on experimental and pre-operational satellites (including operation of OTS) |       |     | 64.4  |
| (e) Studies of operational configuration   | ...   | ... | 3.3   |
|  |       |     | <hr/> |
|  | Total | ... | 115.1 |
|  |       |     | <hr/> |

Indirect expenditure, the programme's share of the Organisation's common and support costs, will depend on the size of the overall programme of the Organisation and on the future method of re-assignment. It is currently estimated at 28 MAU at mid-1972 prices, assuming indirect costs distributed pro rata among all programmes.

##### 1.2. Sub-Phase (2 bis)

The direct expenditure and contingency margin in respect of sub-Phase 2 bis, if such a sub-Phase is decided on, are at present estimated at 11 MAU, at mid-1972 prices.

### 1.3. Phase 3 of the programme

The indicative financial envelope for Phase 3 of the programme is made up as follows:

(In millions of accounting units, at mid-1972 prices)

|  | <i>Min.</i> | <i>Max.</i> |
|--|-------------|-------------|
| (a) Direct expenditure on development and construction of two flight units of the operational satellite: |             |             |
| —with a 400-kg configuration ... ..  | 121         |             |
| —with a 800-kg configuration (Neither case includes the launch of a prototype (FO).) ... ..              |             | 203         |
| —possible launch of a prototype of the operational satellite ... ..                                      |             | 18          |
| (b) Share of the Organisation's common and support costs:  |             |             |
| —with a 400-kg operational configuration ... ..  | 34          |             |
| —with a 800-kg operational configuration (Without launch of a prototype.) ... ..                         |             | 55          |
| (c) Share of overall contingency margin of the Organisation's application programmes:                    |             |             |
| —with a 400-kg operational configuration ... ..  | 5           |             |
| —with an 800-kg operational configuration ... ..   |             | 7           |
| Totals ... ..  | 160         | 283         |

### 2. Scale of contributions

Each Participant shall contribute to the expenditure resulting from the execution of the programme by the Organisation under the foregoing Arrangement:

(a) in accordance with the following scale applicable for years 1972–1974:

| <i>States</i>                      | <i>Share of contributions</i> |
|------------------------------------|-------------------------------|
|                                    | %                             |
| Federal Republic of Germany ... .. | 25.01                         |
| Belgium ... ..                     | 3.96                          |
| Denmark ... ..                     | 2.35                          |
| France ... ..                      | 23.11                         |
| Italy ... ..                       | 14.69                         |
| Netherlands ... ..                 | 2.50                          |
| United Kingdom ... ..              | 20.09                         |
| Sweden ... ..                      | 4.90                          |
| Switzerland ... ..                 | 3.39                          |
| Total ... ..                       | 100.00                        |

(b) thereafter in accordance with a scale which shall be decided following the usual Council procedure (Article XII, 1 (b) of the Convention).

### **3. Reports by the Organisation on the financial and contractual situation**

The Director General of the Organisation shall issue the necessary instructions for the presentation of reports on the progress and geographical distribution of the work, on the call-ups of contributions, the expenditure to date and the latest estimates of cost to completion of the programme, in accordance with the relevant provisions of the Organisation's Financial Rules and with the provisions adopted by the Council of the Organisation concerning the periodical reports to be presented (document ESRO/C/306, add. 2, rev. 1).

### **4. Financial Rules to be observed**

The direct expenditure resulting from the execution of the programme by the Organisation under the foregoing Arrangement shall be charged to a Programme Output Account which shall be established and administered by the Organisation in accordance with the relevant provisions of its Financial Rules. The programme's share of the Organisation's common and support costs shall be established and allocated to the Programme Output Account in accordance with the relevant principles and procedures adopted by the Organisation.

### **5. Revision clause**

The provisions of paragraphs 1 and 2 of this Annex may be revised by a unanimous decision of the Programme Board. The provisions of paragraphs 3 and 4 of this Annex may be revised by a two-thirds majority decision of the Programme Board.

## SIGNATURES AND RATIFICATIONS

|  | <i>Date of<br/>Signature</i> | <i>Date of<br/>Ratification</i> |  |
|--|------------------------------|---------------------------------|--|
| Belgium*    ...    ...    ...    ...     | } 21 Sept. 1973              |                                 |  |
| Denmark    ...    ...    ...    ...      |                              |                                 |  |
| France    ...    ...    ...    ...       |                              |                                 |  |
| Germany, Federal Republic of    ...      |                              |                                 |  |
| Italy*    ...    ...    ...    ...       | } 20 Sept. 1973              |                                 |  |
| Sweden*    ...    ...    ...    ...      | } 21 Sept. 1973              | 29 Apr. 1975                    |  |
| Switzerland*    ...    ...    ...    ... |                              |                                 |  |
| United Kingdom    ...    ...    ...      |                              |                                 |  |
| European Space Research Organisation     | 20 Sept. 1973                |                                 |  |

\* Subject to ratification.