No. 11498

UNITED STATES OF AMERICA
and
CANADA

Exchange of notes constituting an agreement regarding an experimental communications technology satellite project (with memorandum of understanding). Washington, 21 and 27 April 1971

Authentic texts of the notes: English and French.

Authentic text of memorandum: English.

Registered by the United States of America on 5 January 1972.

ÉTATS-UNIS D'AMÉRIQUE
et
CANADA

Échange de notes constituant un accord relatif à un projet expérimental de satellite de technologie des communications (avec mémorandum d'entente). Washington, 21 et 27 avril 1971

Textes authentiques des notes: anglais et français.

Texte authentique du mémorandum: anglais.

Enregistré par les États-Unis d'Amérique le 5 janvier 1972.

EXCHANGE OF NOTES CONSTITUTING AN AGREEMENT [1] BETWEEN THE UNITED STATES OF AMERICA AND CANADA REGARDING AN EXPERIMENTAL COMMUNICATIONS TECHNOLOGY SATELLITE PROJECT

I

CANADIAN EMBASSY
WASHINGTON, D.C.

No. 96 April 21, 1971

Dear Mr. Secretary,

I have the honour to refer to discussions between representatives of the Department of Communications of Canada and the National Aeronautics and Space Administration of the United States of America regarding a space applications project to follow the successful collaboration established in the Alouette and International Satellites for Ionospheric Studies (ISIS) programs. In place of the third joint satellite originally planned in the ISIS series, it is proposed to introduce a project for a Communications Technology Satellite (CTS) and it is further proposed that this project supercede the arrangements for the third joint satellite set forth in the agreement, effected by the exchange of notes of May 6, 1964, [2] as amended by the exchange of notes of May 11, 1970. [3] The objective of the CTS project is to advance the state of the art in spacecraft and related ground-based technology relevant to future communications and other satellite applications systems.

A description of the CTS project and the details for its implementation have been incorporated in the Memorandum of Understanding attached to this note. It is understood that implementation and direction of Canadian participation in the project shall be the responsibility of the Canadian Department of Communications, and that implementation and direction of the United States participation shall be the responsibility of the United States National Aeronautics and Space Administration.

I have the honour to inform you that the Canadian Government approves the project.

I propose that each Government shall, in accordance with its domestic laws, bear responsibility for any damage caused to its nationals arising from

[1] Came into force on 27 April 1971, the date of the note in reply, in accordance with the provisions of the said notes.
[2] United Nations, *Treaty Series*, vol. 524, p. 173.
[3] *Ibid.*, vol. 752, p. 394.

activities conducted directly pursuant to this project. In the event of damage to persons not nationals of Canada or the United States for which there is liability under international law or the principles of the Treaty Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, [1] the two Governments agree to consult promptly on an equitable sharing of payments for such settlement.

If an agreement is not reached within 180 days, the two Governments will act promptly to arrange for early arbitration to settle the sharing of such claims following the 1958 model rules on arbitral procedure of the International Law Commission. [2]

I have the honour to propose that if the project and the proposals in this note are acceptable to the United States Government, this note, together with the attached Memorandum of Understanding, which are authentic in English and French, and your confirming reply, shall constitute an agreement between our two Governments for cooperation in this experimental Communications Technology Satellite project, which shall enter into force on the date of your reply. This agreement may be terminated by agreement between the two Governments prior to April 22, 1981 and thereafter by either Government upon 180 days notice.

Accept, Mr. Secretary, the renewed assurances of my highest consideration.

M. CADIEUX
Ambassador

The Honourable William P. Rogers
Secretary of State
Washington, D. C.

MEMORANDUM OF UNDERSTANDING BETWEEN THE UNITED STATES NATIONAL AERONAUTICS AND SPACE ADMINISTRATION AND THE CANADIAN DEPARTMENT OF COMMUNICATIONS

1. The United States National Aeronautics and Space Administration (NASA) and the Canadian Department of Communications (DOC) affirm a

[1] United Nations, *Treaty Series*, vol. 610, p. 205.
[2] United Nations, *Official Records of the General Assembly, Thirteenth Session, Supplement No. 9* (A/3859), p. 5. Also published in United Nations, *International Law Commission Yearbook, 1958, Tenth Session, Volume II* (A/CN.4/SER.A/1958/Add. 1), p. 83.

mutual desire to extend their successful collaboration in the Alouette and ISIS satellite programs by undertaking jointly an experimental Communications Technology Satellite Project.

2. The objective of this project is to advance the state-of-the-art in spacecraft and related ground-based technologies relevant to future communications and other satellite applications systems.

3. Accordingly, NASA and DOC agree to use their best efforts to launch a Communications Technology Satellite into a geostationary orbit position which permits experimentation directly with earth stations in the United States and Canada. For this launch a Thor-Delta-class vehicle will be used, and the provisional launch date is estimated at calendar year 1974.

4. The principal technological objectives of this project are to conduct satellite communication systems experiments with 12 GHz terminals and to develop and flight test:

(*a*) A superefficiency power tube having greater than 50 % efficiency at a minimum output power of 200 watts and operating at approximately 12 GHz;

(*b*) Unfurlable solar power arrays of over 1.0 KW initial capability;

(*c*) Liquid metal slip rings;

(*d*) An electric propulsion system for spacecraft station keeping;

(*e*) An accurate stabilization system for a spacecraft with flexible appendages.

5. To carry out this project, the DOC will use its best efforts to fulfill the following responsibilities:

(*a*) Design, construct, integrate and test the spacecraft and the subsystems necessary to achieve the technological objectives noted in paragraph 4 above, including flight-qualified spares for all critical subsystems, except as provided in subparagraphs 6(*c*) and (*e*);

(*b*) Provide, integrate and test the apogee motor subsystem;

(*c*) Provide, as mutually agreed, flight-qualified spares of critical spacecraft subsystems, and spacecraft ground checkout equipment, except as provided in subparagraphs 6(*c*) and (*e*);

(*d*) Provide tracking, data acquisition, command and control after the spacecraft is placed into the agreed geostationary orbit position;

(*e*) Provide ground facilities in Canada for experimental programs.

6. To carry out this project, NASA will use its best efforts to fulfill the following responsibilities:

(*a*) Provide a Thor-Delta-class launch vehicle, conduct the launching into the agreed geostationary orbit, and provide the services required to achieve this launching operation;

(*b*) Provide heat shield (shroud) and spacecraft tie-down and separation mechanisms, as mutually agreed;

(*c*) Provide, for inclusion in the spacecraft, superefficiency power tubes (see paragraph 4 (*a*) above) and associated power conditioning and thermal interface equipment, as well as any necessary spares;

(*d*) Provide ground facilities in the United States of America for the experimental program;

(*e*) Establish specifications and provide facilities for final spacecraft environmental and flight acceptance tests;

(*f*) Act as Co-Investigator to the DOC in carrying out the objectives stated in subparagraphs 4 (*b*), (*c*) and (*d*).

7. In the event a first launching is unsuccessful, the DOC and NASA will give consideration to a single launching of a back-up spacecraft. This is dependent on budgetary and scheduling considerations as well as on mutual agreement that a back-up launching is warranted in the particular circumstances that exist at the time.

8. NASA will provide, as mutually agreed, technical assistance, advice and data to DOC in meeting the responsibilities of paragraph 5 above. The DOC agrees that such technical assistance and data as is released by NASA in support of paragraph 5 above, including the systems developed with this data:

(*a*) will be identified and recorded by the Project Managers;

(*b*) will not be transferred to a third country without the prior written approval of the US Government;

(*c*) will be used for purposes consistent with the obligations of the US and Canada as contained in relevant international agreements, such as the Outer Space Treaty and the INTELSAT Agreement. [1]

9. US industry requests for manufacturing license or technical assistance agreements connected with this project will be subject to the normal requirements of the US Department of State International Traffic in Arms Regulations.

10. NASA and DOC shall consult as early as possible with their respective national authorities to determine whether use of the desired frequency ranges for the satellite is acceptable.

11. Final determination of launch readiness will be by agreement between NASA and DOC.

12. It is understood that this project is experimental in character and subject to change in accordance with changing technical requirements and opportunities. Therefore, the details of the project may be modified as required by the mutual agreement of NASA and DOC.

[1] United Nations, *Treaty Series*, vol. 514, p. 25.

13. It is intended that this project as agreed between NASA and DOC be implemented under the general direction of the Assistant Deputy Minister (Research) of DOC and the Director of Communications Programs of NASA.

14. In addition, each Agency will designate a Program Manager, who will be responsible for coordinating the agreed functions and responsibilities of each Agency with respect to the other, and a Project Manager, who will be responsible for carrying out the project at the Center level. A joint working group will be designated by NASA and DOC. This group will be the principal mechanism for assuring the execution of the project and for keeping both sides informed of the project's status at each stage.

15. There will be no exchange of funds between NASA and DOC. Each Agency will arrange to meet the cost of discharging its responsibilities, including necessary procurement of components, subsystems and services, travel and subsistence for its own personnel and transportation charges on all equipment and flight assemblies or components for which it is responsible.

16. NASA and DOC agree to use their best efforts to ensure the granting to each other by their respective Governments of royalty-free licenses to use inventions which are necessary to carry out the designated responsibilities of each Agency under this experimental cooperative project to the extent that their respective Governments own or have the right to grant such licenses.

17. NASA and DOC will use their best efforts to arrange free customs clearance for equipment required in this project, subject to the laws and regulations in force in their respective countries.

18. NASA and DOC agree to freely share and exchange all scientific and technical results of spacecraft tests and communications experiments conducted in the pursuit of this cooperative project.

19. Results of experimentation in this project will be made available in general through publications in appropriate journals or other established channels.

20. Each Agency may release public information regarding its own portion of the project as desired, and insofar as the participation of the other Agency is concerned, after suitable coordination.

21. Each Agency will assure that the project is appropriately recorded in still and motion picture photography and that the photography is made available to the other Agency for public information purposes.

22. Subsequent to launch, priority will be given to conducting spacecraft technological experiments. Thereafter, NASA and DOC shall use the experimental satellite to conduct communications experiments, such as TV broadcast or relay, audio broadcast, voice relay, wide-band data link and regular telephone service to remote locations, on approximately a 50-50 time-shared basis. Each Agency will select experiments in accordance with its respective national policy, as applicable to experimental telecommunications satellites. The Program Managers will be responsible for the technical coordination and scheduling of these experiments.

23. It is understood that the ability of NASA and DOC to carry out their obligations is subject to the availability of appropriated funds.

24. Implementation of this Memorandum of Understanding is subject to the approval of the Governments of the United States and Canada to be expressed by an exchange of diplomatic notes.

GEORGE M. LOW
For the National Aeronautics and Space Administration
Date: 4-20-1971

ALLAN GOTLIEB
For the Department of Communications
Date: April 20, 1971

II

DEPARTMENT OF STATE
WASHINGTON

April 27, 1971

Excellency:

I have the honor to refer to your Note No. 96 of April 21, 1971, with attached Memorandum of Understanding, regarding an experimental Communications Technology Satellite project.

The proposed project and the proposals in your note are acceptable to my Government. My Government concurs that your note, together with the attached Memorandum of Understanding, which are authentic in English and French, and this reply shall constitute an agreement between our two Governments for cooperation in the experimental Communications Technology Satellite project, to enter into force on the date of this reply. My Government further concurs that this Agreement may be terminated by agreement between our two Governments prior to April 22, 1981, and thereafter by either Government, upon 180 days notice.

Accept, Excellency, the renewed assurances of my highest consideration.

For the Secretary of State:
[*Signed*]
GEORGE S. SPRINGSTEEN
Acting Assistant Secretary
for European Affairs

His Excellency Marcel Cadieux
Ambassador of Canada
