

MEMORANDUM OF UNDERSTANDING

BETWEEN

THE INDIAN SPACE RESEARCH ORGANISATION

AND

THE ISRAEL SPACE AGENCY

**REGARDING COOPERATION IN ELECTRIC PROPULSION FOR SMALL
SATELLITE**

The Indian Space Research Organisation (hereinafter referred to as "**ISRO**") of Department of Space (DOS), Government of India, whose registered office is located in Bengaluru, Karnataka, India represented by Chairman, Mr. A.S. Kiran Kumar,
and

The Israel Space Agency, (hereinafter referred to as "**ISA**"), on behalf of the Ministry of Science and Technology of the State of Israel, whose registered office is located at SONOL TOWER, 52 Derech Begin. Tel Aviv, Israel, represented by its Director, Mr. Avi Blasberger,

either or both of which may hereinafter be referred to as the "**Party**" or the "**Parties**",

PREAMBLE

RECALLING the Agreement for Cooperation on Peaceful Uses of Outer Space (hereinafter, the "**Framework Agreement**"), signed by the Parties on October 28, 2002;

HAVING REGARD that ISRO and ISA are interested in cooperation in the field of Electric Propulsion for small Satellite missions;

HAVING REGARD that ISA is familiar with the capabilities and products developed by Israeli company RAFAEL Ltd. (hereinafter, "**RAFAEL**");

CONSIDERING the mutual benefit of the Parties from cooperation in a joint project to experiment and Space qualify RAFAEL's Advanced Low Power Electric Propulsion System (hereinafter, "**EPS**") in ISRO mission (hereinafter, the "**Project**");

The Parties have agreed as follows:

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Article 1

Object and Scope

The purpose of this Memorandum of Understanding (hereinafter, the "**MOU**") is to define the terms and conditions governing the feasibility study phase of the Project.

The objectives of the feasibility study phase is to establish a detailed framework for further cooperation between the Parties in conducting the planned Project, by identifying their respective roles and responsibilities as detailed hereinafter.

This MOU, as well as the plan of cooperation for the Project itself, shall be conducted in accordance with the terms and conditions set in the Framework Agreement.

Article 2

Description of the feasibility study

1. ISA and ISRO shall use its best efforts to initiate a **study** to be conducted by Points of Contact, identified in Article 3. The outcome of this study is meant to:
 - (1) Define the Mission Requirements and top-level System Specification of Electric Propulsion system suited for small Satellite missions;
 - (2) Define the "priority" applications, for which the mission will be optimized
 - (3) Define a risk reduction plan;
 - (4) Define system concept, requirements, architecture, interfaces and preliminary budget requirements for each Party;
 - (5) Define the Work Breakdown Structure (WBS) for the subsequent phases, including definition of the respective responsibilities and work share and a statement of work (SOW);
2. On successful completion of this feasibility study, the Parties, on best-effort basis, shall establish a detailed Plan of Cooperation in accordance with Article 3 of the Framework Agreement, and to mutually execute the Project.
3. The Plan of Cooperation shall include the development, integration and in-orbit tests of RAFAEL's EPS on a satellite mission.
4. Signature of the Plan of Cooperation depends on the availability of funds of each Party to this MOU, in accordance with the provisions of Article 4 below.

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Page 2 of 8

Article 3
Project Management

The points of contact of each Party listed below shall be responsible for coordinating the programmatic, administrative, scientific and technical implementation of the cooperative activities carried out under this MOU.

The ISRO Points of contact are:

Technical points of contact

Mr. K. M. Shanbough, ISAC
Liquid Propulsion System Centre
80 feet Road
HAL Second Stage HOP
Bengaluru
0091 9483516028/ 9980290116
kkms@lpscb.gov.in

Administrative points of contact

D. Gowrisankar
ISRO Headquarters,
New BEL Road, Bengaluru
0091 80 23416361
isroic@isro.gov.in

The ISA Points of contact are:

Technical point of contact

Shlomo Angel
52 Menachem Begin Street.
TEL AVIV 61213, ISRAEL
00972 52 721 0002
shlomo.angel@gmail.com

Administrative point of contact

Daniel Barok
52 Menachem Begin Street.
TEL AVIV 61213, ISRAEL
00972 54 999 4740
danielbarok@inter.net.il

The Parties shall inform each other on a regular basis about the milestones (at the end of each activity) of the feasibility checks.

Article 4

Funding

Each Party shall bear the costs of discharging its respective responsibilities under this MOU. These costs include the costs of travel and subsistence of its own personnel as well as transportation of all equipment and information for which each Party is responsible. No exchange of funds or payments among the Parties is foreseen for the execution of activities planned under this MOU.

The obligation of the Parties to carry out their respective responsibilities is subject to their respective funding procedures and to the availability of funds. In the event that funding problems arise that may affect a Party's obligation to fulfil its responsibilities under this MOU, that Party shall notify the other Party in writing as soon as possible. In such a case, the Parties, through their appropriate representatives, shall meet promptly in order to assess the situation and approve corrective actions.

Article 5

Public Information and Confidentiality

Each Party may release information to the public related to its own activities under this MOU. Any other information that has been provided by one Party to the other and identified and marked as "Proprietary" will be appropriately protected in accordance with the Parties internal policies, national laws and regulations.

Upon completion of the activities under this MOU, the receiving Party or its Related Entities shall return or otherwise dispose of all information identified and marked as "Proprietary", with which it has been provided by the other Party or its Related Entities under this MOU, as directed by the furnishing Party or its Related Entities. Under the terms of this MOU, "Related Entity" includes contractors, subcontractors and cooperating entities of either of the Parties.

Article 6

Intellectual Property Rights

1. For the purpose of this MOU, "Intellectual Property" shall, as provided in Article-1 of the Agreement on Trade related Aspects of Intellectual Property Rights (TRIPS), refer to all categories of intellectual property that are the subject of Sections 1 through 7 of Part II of the TRIPS Agreement..

Art 4

2. Nothing in this MOU shall be construed as granting, either expressly or by implication, to the other Party any IPR related to, or interest in, any innovation or work of a Party or its Related Entities made prior to the entry into force of, or outside the scope of, this MOU.
3. Any IPR related to, or interest in, any innovation or work made in the performance of this MOU solely by one Party or any of its Related Entities shall be owned only by such Party or its Related Entities. Allocation of IPR between such Party and its Related Entities shall be determined by such Party's rules, regulations and applicable contractual obligations.
4. It is not anticipated that there will be any joint innovation or work made in the performance of this MOU. Nevertheless, in the event that an innovation or work is jointly made by the Parties in the performance of this MOU, the Parties shall, in good faith, consult with a view to agreeing on:
 - (a) the allocation of IPR related to, or interest in, such joint innovation or work;
 - (b) the responsibilities, costs, and actions to be taken to establish and maintain the IPR related to, or interest in, such joint innovation or work; and
 - (c) the terms and conditions of any license or other IPR related to, or interest in, such joint innovation or work to be exchanged between the Parties, granted by one Party to the other Party or granted jointly by the Parties to a third party.
5. The Parties to this MOU shall cause their respective Related Entities, to be bound by the provisions of this Article through contractual mechanisms or equivalent measures.

Article 7

Transfer of Technical Data and Goods

1. The Parties are obligated to provide each other only with those goods and technical data (including software) necessary to fulfil their respective responsibilities under this MOU, in accordance with the following provisions:
 - (a) Any provision of goods and/or technical data entailed by activities pursuant to this MOU shall be carried out in accordance with applicable laws, rules and regulations of the respective Parties pertaining to export control and the control of classified information.
 - (b) The provision of goods and/or technical data for the purpose of discharging the Parties' responsibilities with regard to interface, integration, and safety shall normally be made without restriction except as provided in paragraph (a) above.

- (c) All provision of goods and/or technical data, which are either proprietary or export-controlled, are subject to the following provisions. In the event a Party or its Related Entity, including contractor, subcontractor, grantee, cooperating entity, finds it necessary to provide goods and/or technical data, which are either proprietary or export-controlled, for which protection is to be maintained, that Party or its Related Entity shall specifically identify and mark them. The identification and marking shall specify that these goods and/or technical data shall be used by the receiving Party or its Related Entities only for the purposes of fulfilling the receiving Party's or Related Entity's responsibilities under this MOU, and that the identified goods and/or technical data, marked proprietary or export-controlled, shall not be disclosed or retransferred to any other entity without the prior written permission of the furnishing Party or its Related Entity. The receiving Party or Related Entity shall abide by the terms of the identification and marking and protect any such identified goods and/or technical data, marked proprietary or export-controlled, from unauthorized use and disclosure. The Parties to this MOU shall cause their Related Entities to be bound by the provisions of this Article related to use, disclosure, and retransfer of goods and/or technical data, marked proprietary or export-controlled, through contractual mechanisms or equivalent measures.
2. All goods and/or technical data provided by one Party or any of its Related Entities to the other Party or any of its related entities in the performance of this MOU shall be used by the receiving Party or Related Entity exclusively for the purpose of this MOU. Upon completion of the activities under this MOU, the receiving Party or Related Entity shall return or otherwise dispose of all goods and/or technical data, marked proprietary or export-controlled, provided under this MOU, as directed by the furnishing Party or Related Entity.

Article 8

Ownership

Except as otherwise agreed in writing by the Parties, each Party shall retain ownership of all the goods, hardware, and software, including associated data and ground support equipment, it provides to the other Party under the terms of this MOU, without prejudice to any individual rights of ownership of the Parties' respective contractors and subcontractors.

Article 9

Cross Waiver of Liability

1. With regard to all activities undertaken pursuant to this MOU, neither Party shall make any claim against the other, employees of the other, the other's Related Entities, or employees of the other's Related Entities, with respect to any injury

to, or death of, its own employees or employees of its Related Entities, or for damage to, or loss of, its own property or that of its Related Entities, whether such injury, death, damage or loss arises through negligence or otherwise, except in the case of gross negligence and willful misconduct.

2. Each Party shall extend this cross-waiver of liability to its own Related Entities by requiring them, by contract or otherwise, to waive all claims against the other Party, Related Entities of the other Party, and employees of the other Party or of its Related Entities, for injury, death, damage or loss arising from, or related to, activities undertaken pursuant to this MOU.
3. This cross waiver of liability shall not be applicable to:
 - (a) claims between a Party and its own Related Entity or among its own Related Entities;
 - (b) claims made by a natural person, his/her estate, survivors or subrogees for injury, other impairment of health, or death of such natural person; and
 - (c) Intellectual Property claims.
4. This cross-waiver of liability shall not be construed as relieving the Parties from any of their respective programmatic responsibilities under this MOU.

Article 10

Consultation and Settlement of Disputes

The Parties shall consult promptly with each other on all disputes concerning the interpretation or implementation of this MOU. Any dispute arising under this MOU shall be resolved through consultations in accordance with article 8 of the Framework Agreement.

Article 11

Amendments, Extension

This MOU may be amended or extended at any time by written consent of the Parties.

Article 12

Entry into Force, Duration and Termination

This MOU shall enter into force on the day of its signature by the Parties. It shall remain in force one year, unless extended by written consent in accordance with Article 11 above.

Each Party may terminate this MOU at any time upon giving written notice to the other Party three months prior to the intended date of termination. In that event, the Parties

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shall endeavour to reach an agreement on terms and conditions of the termination to minimise negative impacts of such termination on the other Party. The termination or expiration of this MOU shall not affect a Party's continuing rights and obligations under Articles 5, 6, 7, 8 and 9 above to the extent needed to enable the Parties to safeguard their rights and to pursue the remedies and benefits.

Done in Jerusalem on 5 July 2017,

the Parties have caused their duly authorised representatives to sign two originals in the Hindi and English languages.

For ISRO

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Mr. A.S. Kiran Kumar
Chairman, ISRO/ Secretary, DOS

For ISA

Avi Blasberger

Mr. Avi Blasberger
Director