

Canadian Space Agency

RFP # 9F064-20140724

ANNEX A

Statement of Work (SOW): Concept Study for a Canada-Israel Space Mission (CISM)

November 10, 2014

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1 INTRODUCTION

1.1 SCOPE

This Statement of Work (SOW) defines activities for a concept study to be conducted by a consortium of Canadian and Israeli industrial partners to define a low-cost, space technologies demonstration mission of interest to both countries. The output of this study will be incorporated into a Business Case that will be submitted to Canadian Space Agency (CSA) and Israel Space Agency (ISA) senior management for consideration of implementation.

1.2 BACKGROUND

While two-way merchandise trade with Israel has been modest at \$1.4 billion in 2012, it remains an important partner for Canada in the Middle East and North Africa region. The relationship between Canada and Israel features significant cooperation in business, education, culture, philanthropy and tourism. During the International Astronautical Conference (IAC) in Toronto in September 2014, a renewed MOU for Canada-Israel Space Cooperation was signed by the Heads of the CSA and the ISA and witnessed by Industry Canada Minister James Moore and MK Jacob Perry, Israel's Minister of Science and Technology. With this renewed MOU, CSA and ISA committed to carry out a joint study on a space mission concept that will be of mutual benefit to both countries. The key criteria for the selection process will be innovation and commercial potential. Taking into consideration of financial capability of both CSA and ISA, the selected mission shall be accommodated on a 50-kg class satellite or on a hosted payload platform. Since then, a joint CSA-ISA working group (WG) was created and extensive discussions have taken place. The WG agreed upon areas of priority to both countries:

- Novel technique for maritime object localization;
- Broadband telecommunications payloads with advanced on-board processing capability.

An initial list of technologies that enable such mission concepts and that are of interest to industries of both countries has been identified:

- Long-wave Infrared Camera;
- Digital communications payload;
- Formation flying technology;
- Satellite bus;
- Software Defined Radio (SDR);
- On-board propulsion system.

Contractors can propose other mission enabling technologies that are not listed here, but preference will be given to the five technologies listed above.

1.3 DOCUMENT CONVENTIONS

A number of the sections in this document describe controlled requirements and specifications and therefore the following verbs are used in the specific sense indicated below:

- a) “Shall” is used to indicate a mandatory requirement;
- b) “Should” indicates a goal or preferred alternative. Such goals or alternatives shall be treated as requirements on a best efforts basis, and verified as for other requirements. The actual performance achieved shall be included in the appropriate verification report, whether or not the goal performance is achieved;
- c) “May” indicates an option;
- d) “Will” indicates a statement of intention or fact, as does the use of present indicative active verbs.
- e) “Contractor” designates a team of companies led by a Canadian Prime Contractor, that has entered into a formal agreement with one or several Israeli industrial companies to conduct the activities described in this SOW.

2 DOCUMENTS

2.1 APPLICABLE DOCUMENTS (AD)

The following documents of the exact issue date and revision level shown are applicable and form an integral part of this document to the extent specified herein. These documents can be obtained from the following File Transfer Protocol (FTP) site:

FTP address: <http://www.asc-csa.gc.ca/eng/publications/space-policy/>

Additional documentation will be provided at the Kick-Off Meeting on an as-needed basis.

TABLE 2.1-1 APPLICABLE DOCUMENTS

AD No.	Document Number	Document Title	Rev. No.	Date
AD-1				
AD-2				
AD-3				

2.2 REFERENCE DOCUMENTS (RD)

The following documents provide additional information or guidelines that either may clarify the contents or are pertinent to the history of this document.

TABLE 2.2-1 REFERENCE DOCUMENTS

RD No.	Document Number	Document Title	Rev. No.	Date
RD-1	BT53-15/1-2009E-PDF	Business Case Guide		2009
RD-2		Canadian Space Policy Framework: Launching the Next Generation		2014
RD-3				

3 REQUIREMENTS

The Contractor shall manage the project to effectively achieve project performance, scope, quality, cost and schedule requirements of this SOW. The Contractor shall provide the management, technical leadership, and support necessary to ensure effective and efficient performance of all project efforts and activities.

The Contractor shall report project costs, schedule, technical, performance and risks issues as defined herein.

3.1 GENERAL

The Contractor shall define the mission concept and propose its implementation plan. The estimated cost for Phase A-E of the mission shall be provided. This information shall be incorporated into the Business Case with a breakdown of the expenditures in each country to allow the governments of Canada and Israel to make an informed decision. In Canada, the criteria for the decision will be based on Government of Canada priorities and Canadian Space Policy Framework [RD-2]; in Israel the criteria for the decision will be based on Israel Space Agency policy and priorities

In the following, it is assumed that the ‘Contractor’ consists of a Canadian Prime Contractor that has assembled a team of Canadian industries and/or academia as sub-contractors and Israeli industrial and/or academia partners that will conduct the activities together. It should be noted that CSA and ISA have agreed that for this study, CSA contract shall support Canadian industries and/or academia while Israeli industrial and/or academia partners shall be funded by ISA.

3.2 OBJECTIVES AND GOALS

The Study has the high-level objective of providing input to the Business Case for a Canada-Israel Space Mission (CISM). To meet this objective, the Study is broken down into five parts that cover the required information for the preparation of a business case [RD-1]; they are briefly described below to provide the necessary context for the detailed tasks in Section 3.3:

- Part 1 – Mission Concept and Impact Assessment: A description of the proposed collaborative space mission and the data and service that will be generated. An assessment will be made on its opportunity cost and its impact on the governments of Canada and Israel in the delivery of their respective national priorities.
- Part 2 – Preliminary Options Analysis: An analysis of the various options that could deliver similar data and/or services of the proposed CISM. The options will include non-space solutions. The pros and cons of each option will be considered and the viable options retained.
- Part 3 – Analysis of Viable Options: From the list of viable options, the cost, risk and performance will be compared and the choice of CISM will be clearly demonstrated. Technology Readiness and Risk Assessment (TRRA) of payloads and key subsystems will be explained.

- Part 4 – Managing the Investment: The implementation of the mission and the required investment will be provided and justified. Technology development plan and risk mitigation strategies will be illustrated.
- Part 5 - Business Case Outline: The main findings, trade-offs, and recommendations obtained from Parts 1 through 4 will be summarized and presented in a Business Case to the governments of Canada and Israel.

3.3 DETAILED TASKS

Part 1 – Mission Concept and Impact Assessment

Task 1: Mission Objectives

The Contractor shall identify the main objectives of the mission, which could be to demonstrate new technologies, applications or services of interest to Israel and Canada.

A first presentation of the objectives shall be provided in response to the RFP. The contractor shall elaborate on the impact of each objective and set thresholds, success criteria, etc. for each objectives

The outcome of Task 1 shall form the basis for defining the mission and systems requirements.

Task 2: Mission Concept and Requirements.

The Contractor shall develop the mission concept and mission architecture (space and ground segment) that can meet the objectives. Supported by simulations and analysis, the Contractor shall determine the quality of data and the level of service that can be expected. The Contractor shall make a comparison with the current state-of-the-art methodology in generating similar data and service.

In the process of defining a feasible concept, the Contractor may revise the objectives. Any significant revision shall be notified to CSA and ISA's Technical Authority for guidance. The contractor shall prepare a Mission Requirement List (DID 0009) providing a table form description of the proposed mission, its main requirements and its implementation. The contractor shall prepare a Mission Conceptual Document as per DID 0008 and present it at a Mission Concept Review.

Part 2 – Preliminary Options Analysis

Task 3: Impact Analysis

The contractor shall identify options that can deliver similar data and/or service of the proposed mission. The contractor shall prepare a list of 'impact' criteria that will be used for the assessment and provide them to CSA and ISA's Technical Authorities for comments and guidance. The pros and cons of each option will be considered and the viable options retained.

The analysis of the preliminary options shall be presented at the Mission Concept Review.

Part 3: Analysis of Viable Options

Task 4 Mission Concept Selection

Based on outcomes of the Mission Concept Review, the Contractor shall further elaborate the viable options, make a final selection of the preferred concept and finalize the Mission Requirements List (DID 0009).

Task 5 Mission Development Plans

The contractor shall breakdown the mission into sub-systems at a level sufficient to estimate required developments, cost, risk and performance. The system breakdown shall be the basis of the TRRA and Development Plan (DID 0011) for the mission. The final mission concept, the mission requirements list, the TRRA and Development Plan shall be presented at a MRR.

Part 4 – Managing the Investment

Task 6: Mission Implementation Plan

The Contractor shall prepare a Mission Implementation Plan (DID 0010), describing the Mission, how it would be implemented and managed between the Canadian and Israel partners. The associated WBS for each Phase shall be required. The Mission Implementation Plan shall be presented at the MRR.

Task 7: Intellectual Property

The Contractor shall prepare Background and Foreground Intellectual Property (BIP and FIP) Report (DID 0007), identifying the BIP that will be required to executed the contract work and FIP that will be generated in the execution of this contract.

Part 5 - Business Case Outline

Task 8: Final Report

The work performed shall be summarized in the Final Report (DID 0012) together with the Executive Summary and recommendations for the way forward. The Final Report will play the role of a business case document for the proposed mission.

3.3.1.1 Intellectual Property

An agreement on IP sharing between the Canadian and Israeli industrial partners shall be required in response to the RFP. The ownership on the Intellectual Property (IP) developed in this study shall be vested with the Contractor. Canada is granted a perpetual and worldwide licence to exercise all intellectual property rights on the Foreground Intellectual Property and its associated Background Intellectual Property for Canada's activities. These rights would allow Canada to proceed with its programs or projects if it were the owner of the Foreground IP, other than exploit it commercially or assign ownership of it. This implies that, after this concept study, CSA and ISA could award, without prejudice, grants, contributions or contracts to the

most qualified Canadian-Israeli team for the complete implementation of the proposed mission with complete access to the FIP generated in the study as well as the required BIP to exercise it.

3.4 DELIVERABLES

The deliverables for the activity are listed in Table 3.4-1.

TABLE 3.4-1 LIST OF DELIVERABLES

Reports & Documents	Date
Mission Conceptual Document (CDRL MD1)	Meeting Date of MCR
Mission Requirements List (CDRL MD2)	Meeting Date of MRR
Mission Implementation Plan	Meeting Date of MRR
Technology Readiness & Risk Assessment & Development Plan (CDRL EN1)	Meeting Date of MRR
Minutes/ Presentations	Date
Kick-Off Meeting Presentations	ARO + 1 week
Mission Concept Review Presentations	Meeting Date of MCR – 1 week
Mission Requirements Review Presentations	Meeting Date of MRR – 1 week
Final Review Presentation	Final Review Meeting – 1 week
Meeting Agenda (CDRL PM4)	Meeting Date – 1 Week
Minutes of Meetings (CDRL PM5)	Meeting Date + 1 week
Action Item Log for Progress Review and Teleconference (CDRL PM6)	Meeting Date + 1 day
Final Data Package	2 weeks before Contract End Date
Final Report (CDRL EN-2)	ARO + 5 months
Executive Report (CDRL EN-2)	ARO + 5 months
BIP and FIP Disclosure (CDRL PM7)	ARO + 5 months
Technical Notes on System Design and Performance	As required.
Project Management Deliverable	
Contractor Work Breakdown Structure (CWBS)	Kick-off (Shall be submitted with Proposal)
Detailed Schedule (CDRL PM2)	Initial at Kick-Off updated at PM1 (or as required by TA).
Monthly Progress Report (CDRL PM3)	Within five (5) working days of the month

3.5 SCHEDULE

The work described in this SOW shall be completed before July 31, 2015.

3.6 MEETINGS

Table 3.6-1 list the meetings planned for this activity.

TABLE 3.6-1 LIST OF MEETINGS

Meeting	Date	Location
Kick-Off	ARO + 2 weeks	Contractor
Mission Concept Review	KOM + 10 weeks	CSA or Teleconference
Mission Requirements Review	MCR + 4 weeks	CSA or Teleconference
Final Presentation	MRR+ 2 months	CSA
Teleconference	As needed	Teleconference

3.7 DOCUMENTATION AND NAMING CONVENTION

Documentation, reporting and other deliverables shall be according to instructions provided in Appendix B of this SOW, which also provides naming convention. Presentation material should be in Power Point format. Documents provided in Adobe PDF format shall not be protected against copy of text and figures.

Documents shall be delivered in the original software application format. One electronic copy of each deliverable document shall be transferred to the CSA to the address and in the format specified in DID-0000, section 1.1. No paper copy is to be delivered.

All software, simulation scenarios that have been considered (e.g. with STK and Matlab) shall be delivered in CD-ROM or DVD-ROM format.

All documents shall be provided 5 working days prior to the specified Review/Meeting unless otherwise indicated.

3.8 PROJECT MANAGEMENT REQUIREMENTS

The Contractor is responsible for establishing and maintaining a project management control system necessary meeting the requirements provided in the next sub-sections.

3.8.1 *Team Organization*

The Contractor shall set up and maintain a project organization specific to this project. The Contractor shall provide and maintain a current Project Organizational Chart showing personnel assignments by name and function, and showing sub-Contractor-reporting relationships.

The Contractor shall nominate a Project Manager, who will be responsible for all aspects of the work carried out by the Contractor and will act as single point of contact within its project organization for communications between the Contractor and the Technical Authority (TA). In the absence of the single point of contact, the Contractor shall designate an alternate to maintain continuity of communication between the Contractor and the TA.

The Contractor shall also identify other key personnel who are considered essential to the performance of the contract. The Contractor shall assign personnel with appropriate qualifications and experience to all posts within the project organization.

The Contractor shall include, within its program management structure, the necessary leadership to effectively manage the performance of sub-Contractors in keeping with the project objectives.

3.8.2 Contractor Work Breakdown Structure

The Contractor shall prepare and maintain a detailed Contractor Work Breakdown Structure (CWBS) [Contract Data Requirements List (CDRL) PM1].

(Please refer to Appendix A, for the Contract Data Requirement List (CDRL)).

The CWBS shall include all project management, product assurance, mission and operations planning and engineering work identified in this SOW, including subContractors' work.

3.8.3 Detailed Schedule and Critical Path

The Contractor shall prepare and maintain a detailed schedule (CDRL PM2) based on the CWBS for all the work to be performed under this contract.

The schedule shall include all the milestones listed in Section 3.6. The schedule shall show dependencies between the activities to identify the critical path.

The schedule shall be updated at each major milestones.

3.8.4 Communications and Access

The Contractor shall establish and maintain a close management and technical interface with CSA to assure a coordinated program effort and monitoring of the total program cost, schedule and performance.

The Contractor shall provide temporary accommodation and other facilities for the use of the CSA representatives (and the nominated attendees) visiting the Contractor's premises for reviews, meetings, audits, liaison, etc.

The accommodation shall be adequate for the purposes of the visit and the facilities provided shall include telephone, faxing, photocopying and Internet access.

All documentation and data generated by the Contractor for the project shall be accessible to the TA for review.

3.8.5 Project Meetings

The Contractor shall hold the meetings described in Section 3.6. Some or all of these meetings may be attended by representatives of the CSA and ISA.

All meetings will be held between the Contractor and the TA at a mutually agreeable time. The Contractor shall provide formal notification of the proposed meeting date to the TA no less than 10 working days before the meeting (with the exception of the KOM where the Contractor shall provide formal notification no less than five (5) working days before the meeting).

For meetings held at government venues, the Contractor shall inform the TA of the names of Canadian Contractor and Subcontractor attendees and Israeli partner attendees no less than ten (10) working days before each meeting.

Additional teleconferences and face-to-face review meetings shall be held if necessary when mutually agreed to by the Contractor and the CSA project manager.

Meetings can be alternatively replaced by videoconference or teleconferences for cost and/or time savings and when appropriate to support the scope of the meeting.

3.8.5.1 Kick-off Meeting

The Contractor shall hold a Kick-off Meeting (KOM) two weeks After Receive Order (ARO). This meeting will be chaired by the TA.

This meeting shall serve as an opportunity for CSA and PWGSC to review the Contractor's plans, the requirements of the work (SOW), schedules, deliverables, risks, and address issues.

All key participants under the contract, including one representative from each major sub-Contractor, shall attend.

3.8.6 Agendas, Minutes and Action Item Log

The Contractor shall provide a Meeting Agenda (CDRL PM4) for all reviews and meetings including teleconferences and shall deliver these to the TA no less than 5 working days before the meeting and shall have it approved by the TA.

The Contractor shall produce the minutes for all reviews and meetings including teleconferences and shall deliver these to CSA (CDRL PM5). In the case of teleconferences, they shall be delivered the next business day.

The Contractor shall maintain a detailed Action Item Log (AIL) throughout the project to track actions resulting from all reviews and meetings including teleconferences using the following red-yellow-green stoplight method:

- 'Green' implying that the action item will be completed on-time.
- 'Yellow' implying that there exist an issue which will prevent meeting the deadline, and
- 'Red' implying that the action is past due.

Also, a chart indicating how many action items are open and how many are closed since the beginning of the project shall be produced for the monthly progress report and at the meetings. The AIL (CDRL PM6) shall be delivered with the Monthly Progress Report.

3.8.7 Project Reporting

3.8.7.1 Monthly Progress Reports

The Contractor shall submit monthly Progress Reports (CDRL PM3). The Monthly Progress Reports shall be sent by e-mail to the Technical Authority every month and no later than five working days after the end of the month. The progress payment shall be subjected to the receipt and acceptance of the Monthly Progress Reports and the deliverables.

3.8.8 Documents Deliverables

The Contractor shall deliver all documentation listed in the CDRL tables (Appendix A) as a minimum. The format and content of the deliverables shall be in accordance with the requirements specified in the Data Item Descriptions (DIDs) (Appendix B), both the specific DID identified in the CDRL and the General Preparation Instructions, DID-0000.

Except for the documents that will remain CSA documents, the Contractor may propose documents in a Contractor's format provided the purpose, scope and content equal or exceed the DID requirements. Subject to CSA approval, the content of the Contractor's document will replace the content of the document specified in the DID.

All documents shall be delivered on CD-ROMs or DVD-ROMs (except Shipping Documents).

SI units shall be used/supplied by the Contractor. Conversion factors shall be supplied for all non-SI units used in the deliverable documents (including dates as YYYY-MM-DD).

The delivery schedule for all documentation shall be as defined in the CDRL table.

The Contractor shall obtain approval from the CSA for all CDRL Documents so indicated in the CDRL table (see Section 3.8.8.1).

3.8.8.1 Documents Delivered for Approval

The term "Approval" as used in this document and in other documents referred to herein, means written approval by CSA, of documents submitted by the Contractor. Once approved, the document is authorized for further use by CSA. The TA does not take responsibility for the validity of the data, or statements, and the Contractor is fully responsible for the content and secondary effects derived there from. The document may not be changed without the TA's approval. No request or document for which approval is required shall be acted upon or implemented by the Contractor until such approval is provided. Such requests and documents will be reviewed promptly by the TA and the necessary written approval or disapproval will be provided after their receipt by CSA. In the event of a failure by the TA to approve or disapprove the document within thirty (30) calendar days, the documents may be deemed approved. In the event that a request or document is disapproved, the TA will advise the Contractor in writing as to the reasons for such disapproval and will define the additions, deletions or corrections that the TA deems necessary to render the request or document acceptable. Disapproved requests or documents that are subsequently amended by the Contractor and resubmitted for approval will be either approved or disapproved by the CSA.

3.8.8.2 Documents Delivered for Review

The term "Review" as used in this document and in all other documents referred to herein, means, unless specifically stated otherwise, a CSA review of the documents submitted for that purpose by the Contractor. The acceptance by the TA of a document for review shall imply that the document has been reviewed, commented on, revised as necessary, and has been determined to meet the requirements. The TA does not take responsibility for the validity of the data, or statements, and the Contractor is fully responsible for the content and secondary effects derived there from. In the event that the TA does not concur with a document submitted for review, the TA will so notify the Contractor. Such notification will include a full explanation of the reasons for the lack of concurrence and will recommend the additions, deletions or corrections that the TA deems beneficial to the needs of the project.

The Contractor is obligated to consider implementation of the changes suggested by CSA insofar as the changes are in accordance with the relevant DID in Appendix D and this SOW. If written notification of concurrence is not provided by CSA within thirty (30) calendar days of the receipt of the document, the document will be deemed to have been reviewed by the TA without comment.

3.8.9 Subcontract Management

The Contractor shall be fully responsible for implementation and execution of all tasks, including those subcontracted to others. Whenever this is the case, the Contractor shall prepare and maintain subcontract Statements of Work, technical requirements documents, etc., necessary to effectively manage the subContractors' work. At the request of the TA, copies of subContractor documentation shall be delivered to the TA.

The Contractor shall ensure that all of the relevant requirements of this Statement of Work are flowed down to the subcontract Statements of Work.

3.8.10 Product Assurance

There are no applicable product assurance requirements in this study.

3.9 INTELLECTUAL PROPERTY

The Contractor shall prepare Background and Foreground Intellectual Property (BIP and FIP) Report (CDRL PM7), identifying the BIP and FIP that will be generated in this study.

4 GOVERNMENT FURNISHED EQUIPMENT AND INFORMATION

No GFE

APPENDICES



APPENDIX A CONTRACT DATA REQUIREMENTS LIST (CDRL)

This Appendix defines the documentation to be delivered by the Contractor.

LEGEND:

- A = Approval (in the Approval Category)
- CF = Contractor's format
- F = Final (under Configuration Control, 100% complete and correct)
- IR = Initial Release (under Configuration Control, 95-100% complete and correct)
- KOM = Kick-off Meeting.
- M = Monthly
- Prop. = With Contractor's proposal.
- R = Review (in the Approval Category)
- U = Update
- X = Ad-hoc, as and when required

TABLE A-1 CDRL

CDRL No.	Title	SOW Sect. No.	DID No.	Prop.	KOM	MCR	MRR	Final Review	Other	Approval Category
PM1	CWBS and Work Package Descriptions	3.8.2	0001	IR	U	U		U		A
PM2	Project Schedule	3.8.3	0002	IR	U	U		U	M	R
PM3	Monthly Progress Report	3.8.7.1	0003						M	R
PM4	Meeting Agenda	3.8.6	0004						X	R
PM5	Minutes of Meetings	3.8.6	0005						X	R
PM6	Action Items Log (AIL)	3.8.6	0006						X	R
PM7	BIP and FIP Disclosure Report	3.9	0007			IR		F		R
MD1	Mission Concept Document	3.3	0008			IR		F		R
MD2	Mission Requirements List		0009				IR	F		R
MD3	Mission Implementation Plan		0010				IR	F		R
EN1	Technology Readiness & Risk Assessment		0011				IR	F		R

CDRL No.	Title	SOW Sect. No.	DID No.	Prop.	KOM	MCR	MRR	Final Review	Other	Approval Category
EN2	Final Report		0012					IR	X	R

APPENDIX B DATA ITEMS DESCRIPTIONS (DIDs)

DID-0000 - GENERAL PREPARATION INSTRUCTIONS	19
DID-0001 – CWBS AND WORK PACKAGE DESCRIPTIONS	22
DID-0002 – PROJECT SCHEDULE	23
DID-0003 – PROGRESS REPORT	24
DID-0004 – MEETING AGENDA	25
DID-0005 – MINUTES OF MEETINGS	26
DID-0006 – ACTION ITEMS LOG	28
DID-0007 – FIP AND BIP DISCLOSURE REPORT	29
DID-0008 – MISSION CONCEPT DOCUMENT	30
DID-0009 – MISSION REQUIREMENTS LIST	31
DID-0010 – MISSION IMPLEMENTATION PLAN	32
DID-0011 – TRRA & DEVELOPMENT PLAN	33
DID-0012 – FINAL REPORT	34

DID-0000 - General Preparation Instructions

PURPOSE:

This DID describes the standard format for the preparation of deliverable project documentation. All documentation shall be written in English and shall be delivered in electronic format. Documentation shall be prepared in the Contractor's format, however it shall meet the requirements of this DID.

PREPARATION INSTRUCTIONS:

1. GENERAL INSTRUCTIONS

1.1. Electronic Copies

Electronic documents shall be prepared using the most appropriate tool (Microsoft Word, Excel, MS Project, etc.); released versions shall be delivered in electronic format and may be in PDF. Schedules shall be submitted in Microsoft Project format. Documents shall be delivered via e-mail or direct transfer (FTP). For direct transfer, a notification of the document's readiness and location on a Contractor repository shall be sent.

The electronic file name and the identification number written on the document itself shall have the following format:

WXYZ-CDRL-NUM-CIE_ContractNumber_sentYEAR-MONTH-DAY

where:

WXYZ:	A 4-8 letter acronym of the project
CDRL-NUM:	The CDRL Identifier
CIE:	Name of the Company (no space, no hyphen)
ContractNumber:	For example: _9F028-14-4200-03
_sentYEAR-MONTH-DAY:	Date Tracking Number

Electronic documents or notifications of their availability on Contractor repositories shall be sent to the e-mail address of the TA.

Emails are to contain the project/program acronym or equivalent identifier in the "Subject" line and include the CDRL identifier under which deliverable documents are being submitted. Hard copy and media deliverables are to be addressed to:

Attention: *(TBD)*
Canadian Space Agency
6767, Route de l'Aéroport
Longueuil, QC, J3Y 8Y9
CANADA

The DVD-ROM label shall present the following information:

- a) Company Name

- b) Document Title
- c) Document Number and Revision Status
- d) CDRL Number
- e) Contract Number

1.2. Electronic Documents Format

Electronic copies of text documents shall be formatted for printing on 8.5" x 11" paper.

1.2.1. Page Numbering

General format of documents should include page numbers and be formatted according to the Contractor's normal standard. If the document is divided into volumes, each such volume shall restart the page numbering sequence.

1.2.2. Document Numbers

All pages shall contain the Document Number at the top of the page. Document Numbers shall include revision status and volume identification as applicable.

2. DOCUMENT STRUCTURE AND CONTENT

2.1. Overall

Except as otherwise specified, all documents shall have the overall structure as follows:

- a) Cover/Title Page;
- b) Table of Contents;
- c) Scope;
- d) Applicable and Reference Documents;
- e) Body of Document; and
- f) Appendices

2.2. Cover/Title Page

The title page shall contain the following information:

- Document Number and date: Volume x of y (if multivolume)
- Rev. indicator / date of Rev.
- Document Title
- Project Name
- Contract No.
- CDRL Item No. or Nos., if one document responds to more than one CDRL, subject to prior approval from the TA.
- Prepared for: Canadian Space Agency
- Prepared by: Contractor name, CAGE Code, address, and phone number
- Product tree identifier, if applicable
- © HER MAJESTY THE QUEEN IN RIGHT OF CANADA 2015

2.3. Table of Contents

The table of contents shall list the title and page number of each titled paragraph and subparagraph, at least down to the third level inclusive. The table of contents shall then list the title and page number of each figure, table, and appendix, in that order.

2.4. Scope

This section shall be identified as section 1 and shall, as a minimum, provide the following information:

- a) Identification (number, title) of the system, hardware, or software to which the document applies;
- b) A brief overview of the system to which the document applies; and
- c) A summary of the purpose and content of the document.

The requirements specified in the following DIDs are the minimum expected. The Contractor shall include in all documents all additional information required in order to ensure that the document provided will achieve its purpose as stated in the DID.

2.5. Applicable and Reference Documents

This section shall list by Document Number and title, all applicable and reference documents. This section shall also identify the source of all applicable and reference documents and the revision indicator.

2.6. Body of Document

The body of the document shall be prepared in accordance with the content and format requirements defined in the specific Data Item Description.

2.7. Appendices

Appendices may be used to provide information published separately for convenience of document maintenance.

3. DOCUMENT REVISIONS

Changes in revised documents shall be identified by a sidebar.

4. SUBMISSION OF DATA

Data shall be submitted via Letter of Transmittal (or an electronic equivalent as mutually agreed by the TA and the Contractor), and acknowledged. The Letter of Transmittal will contain as a minimum, the Contract Serial Number, the CDRL Number and the Title. The Letter of Transmittal shall be forwarded by the Contractor in two copies; one copy of acknowledgement to be signed and returned to the Contractor by the recipient.

DID-0001 – CWBS and Work Package Descriptions

PURPOSE:

The Contractor Work Breakdown Structure (CWBS) is used during planning for estimating resources and scheduling the work. During the implementation phase, it is used for reporting and controlling costs and schedule.

PREPARATION INSTRUCTIONS:

The Contractor shall provide a Work Breakdown Structure (WBS) describing all the project elements that organise and define the total scope of the project, and shall be deliverable-oriented.

The Contractor shall prepare and maintain a WBS Dictionary made up of Work Package Descriptions (WPDs) for every element to the lowest level of the WBS. Each WPD shall include, as a minimum:

- a) A unique identifier traceable to the WBS;
- b) A title;
- c) The name of the individual responsible for completion of the work;
- d) The scope of the work package;
- e) The start date and duration;
- f) Required inputs and dependencies;
- g) A description of every activity covered by the WPD including the level of effort and earned value measurement method for each activity, and all non-labour costs;
- h) Assumptions; and
- i) Output and work package acceptance criteria.

DID-0002 – Project Schedule

PURPOSE:

To provide a schedule planning and control system for the project and to provide visibility to the CSA of the program progress and status.

PREPARATION INSTRUCTIONS:

The project schedule shall be based on the WBS, in the form of a Gantt chart. The project schedule shall be detailed enough to show each WBS task to be performed, and shall provide the following information:

- 1) Dependencies;
- 2) Resource requirements;
- 3) The start and end date of each task;
- 4) Task duration;
- 5) Deadlines and milestones;
- 6) Critical Path.

The schedule shall show dependencies between the Contractor and other organizations.

When applicable, the Contractor shall divide longer tasks into smaller significant tasks.

Tasks that are not related to any specific deliverable, such as Project Management activities, shall be grouped separately from deliverables activities, and shall be shown at the top of the chart. The schedule shall be provided in its native tool format; MS project or Project Scheduler are the two accepted formats.

DID-0003 – Progress Report

PURPOSE:

The Progress Report records the status of the work in progress during the previous calendar period. The Progress Report is used by the Government to assess the Contractor's progress in performance of the work.

PREPARATION INSTRUCTIONS:

The monthly progress report shall address the following:

- 1) Brief summary of the work performed in the current month;
- 2) Table of all milestones with actual and expected completion dates;
- 3) Table of all deliverables with the current percentage completion and the actual and expected completion dates;
- 4) Brief summary of the work planned for the following month;
- 5) Short narrative description of any tasks that are behind schedule, the impact on the overall program schedule, and what work-around are planned to achieve the overall program schedule;
- 6) List of all problems and the proposed corrective action;
- 7) Table showing the current financial status (cash flow planned versus actual);
- 8) Significant changes to the project organisation; and
- 9) Any other items that the Contractor wants to bring to the attention of the Technical Authority.

The report shall be concise and should not exceed 3 pages.

DID-0004 – Meeting Agenda

PURPOSE:

To clarify the purpose, content and timings of a meeting.

PREPARATION INSTRUCTIONS:

The meeting agendas shall contain the following information, as a minimum.

1) DOCUMENT HEADER:

- a) Title;
- b) Type of meeting;
- c) Project title, project number, and contract number;
- d) Date, time, and place;
- e) Chairperson; and
- f) Expected duration.

2) DOCUMENT BODY:

- a) Introduction;
- b) Opening Remarks: CSA;
- c) Opening Remarks: Contractor;
- d) Review of previous minutes and all open action items;
- e) Project technical issues;
- f) Project management issues;
- g) Other topics;
- h) Review of any action items as a result of the current meeting and
- i) Set or confirm dates of future meetings.

DID-0005 – Minutes of Meetings

PURPOSE:

The minutes of reviews or meetings provide a record of decisions and agreements reached during reviews/meetings.

PREPARATION INSTRUCTIONS:

Minutes of meeting shall be prepared for each formal review or meeting and shall include the following information, as a minimum:

- 1) Title page containing the following:
 - a) Title, type of meeting and date,
 - b) Project title, project number, and contract number,
 - c) Space for signatures of the designated representatives of the Contractor and the CSA,
 - d) Name and address of the Contractor;
- 2) Purpose and objective of the meeting;
- 3) Location;
- 4) Agenda;
- 5) Summary of the discussions, assumptions, decisions and agreements reached;
- 6) List of the attendees by name, position, phone numbers and e-mail addresses as appropriate;
- 7) Listing of open action items and responsibility for each action to be implemented as a result of the review;
- 8) Other data and information as mutually agreed; and
- 9) The minutes shall include the following statement:

“All parties involved in contractual obligations concerning the project acknowledge that minutes of a review/meeting do not modify, subtract from, or add to the obligations of the parties, as defined in the contract.”

The list of action items shall include the following information:

- 1) the action item number;
 - 2) a description of the action required;
 - 3) the date the action item was opened;
 - 4) the person responsible for ensuring that the action is carried out;
 - 5) the due date for the action;
 - 6) the status of the action (open or closed); and
 - 7) any comments or remarks relevant to the action.
-

Once an action item is closed, the action item list should also indicate the date the action was complete.

DID-0006 – Action Items Log

PURPOSE:

The Action Item Log (AIL) lists, in chronological order, all items on which some action is required, allows tracking of the action, and in the end provides a permanent record of those Action Items (AI).

PREPARATION INSTRUCTIONS:

The AIL shall be in a tabular form, with the following headings in this order:

- 1) Item Number;
- 2) Red, yellow, green stoplight
- 3) Item Title;
- 4) Open Date;
- 5) Source of AI (e.g. KOM);
- 6) Originator;
- 7) Office of Prime Interest;
- 8) Person responsible (for taking action);
- 9) Target/Actual Date of Resolution;
- 10) Status (Open or Closed);
- 11) Remarks; and
- 12) Chart of graphical representation of open, closed, and total action items.

The date in column 8 will be the target date as long as the item is open, and the actual date once the item is closed.

DID-0007 – FIP and BIP Disclosure Report

PURPOSE:

To fully disclose all FIP and BIP resulting from the CISM Concept Study contract.

PREPARATION INSTRUCTIONS:

The report shall include the following:

- an introduction including the scope and the purpose;
- a list and description of all FIP resulting from the CISM Concept Study contract; and
- a list and description of all BIP required by CSA for use of the FIP resulting from the CISM Concept Study contract.

DID-0008 – Mission Concept Document

PURPOSE:

To present the CISM mission concept supported by data and analysis.

PREPARATION INSTRUCTIONS:

The report shall be prepared in accordance with DID-0000 and the body of the report shall include, as a minimum, Tasks 1 to 3 in Section 3.3. This includes, as a minimum, the following items:

- Mission objectives and their alignment with the priorities with the governments of Canada and Israel
- Mission concept and mission architecture (space and ground segment) that can meet the objectives.
- List of possible options that can provide similar data and/or service.
- Determination of viable options from the list of possible options
- Trade-off analysis of viable options and support arguments for CISM

All software simulations used during the study must be submitted in CD-ROM or DVD-ROM format as described in Section 3.3 and 3.7.

DID-0009 – Mission Requirements List

PURPOSE:

To present the CISM mission requirements.

PREPARATION INSTRUCTIONS:

The report shall be prepared in accordance with DID-0000 and the body of the report shall include a table form description of all main requirements (systems, satellite bus, data, ground segment, etc.) and additional information explaining its pertinence.

Requirement Number	Requirement	Additional Information

DID-0010 – Mission Implementation Plan

PURPOSE:

To propose the CISM mission implementation plan

PREPARATION INSTRUCTIONS:

The report shall be prepared in accordance with DID-0000 and the body of the report shall include, as a minimum, the following:

- A Gantt chart including all major milestones for the project scheduling, assuming a start date of April 1, 2016
- WBS for Phase A-E
- Capital expenditure schedule
- Technical and Programmatic Risks and associated mitigation strategies

DID-0011 – TRRA & Development Plan

PURPOSE:

To present in details the Technology Readiness & Risk Assessment (TRRA) and proposed development plan of mission enabling technologies.

PREPARATION INSTRUCTIONS:

The report shall be prepared in accordance with DID-0000 and the body of the report shall include, as a minimum, all items described in Section 3.3. This includes the following items:

- TRRA of each mission enabling technology
- Development Plan of each mission enabling technology

DID-0012 – Final Report

PURPOSE:

The Final Report (DID 0012), together with the Executive Summary and recommendations for the way forward, provides the material for the Canada-Israel Space Mission business case document.

PREPARATION INSTRUCTIONS:

The report shall be prepared in accordance with DID-0000 and the body of the report shall include, as a minimum, the outcome in performing all tasks described in Section 3.3. This includes the following items:

- Mission Objectives
- Mission Concept and Requirements
- Preliminary Options Analysis
- Mission Concept Selection and Development Plan
- Mission Implementation Plan
- Other Recommendations Pertinent to the Mission

APPENDIX C ACRONYMS AND ABBREVIATIONS

AD	Applicable Document
AI	Action Items
AIL	Action Items Log
ARO	After Receive Order
BIP	Background Intellectual Property
CA	Contract Authority
CDRL	Contract Data Requirements List
CISM	Canada Israel Space Mission
COTS	Commercial Off-The-Shelf
CSA	Canadian Space Agency
CWBS	Contract Work Breakdown Structure
DID	Data Item Description
FIP	Foreground Intellectual Property
GFE	Government Furnished Equipment
GS	Ground Segment
GSE	Ground Support Equipment
ICD	Interface Control Documents
IP	Intellectual Property
ISA	Israel Space Agency
KOM	Kick-off Meeting
MCR	Mission Concept Review
MRR	Mission Requirement Review
OGD	Other Government Departments
PI	Principal Investigator
PT	Project Team
PWGSC	Public Works and Government Services Canada
RD	Reference Document
RID	Review Items Discrepancy
ROM	Rough Order of Magnitude
SOW	Statement Of Work

TA	Technical Authority
TBC	To Be Confirmed
TBD	To Be Determined
TRRA	Technology Readiness & Risk Assessment
TRL	Technology Readiness Level
TT&C	Tracking, Telemetry and Command
WBS	Work Breakdown Structure
WPD	Work Package Description