

D MANDATORY REQUIREMENTS, EVALUATION CRITERIA, BASIS OF SELECTION, AND SELF-EVALUATION

D.1 MANDATORY REQUIREMENTS

When referring to experience of the Bidder in the Mandatory Requirements it includes the corporate experience of any contractor, sub-contractor or research partner that is part of the consortium led by the Bidder (i.e. all corporate entities to which the individuals of the proposed team belong).

At Bid closing time, the Bidder must comply with the following Mandatory Requirements and provide the necessary documentation and justification to support compliance in Appendix C of Section I of the proposal.

Any Bid which fails to meet all the following Mandatory Requirements will be declared non-responsive. Each requirement is requested to be addressed separately.

- a) The Bidder must submit with the Bid the certifications required under PART 5 of the RFP;
- b) Proposed consultants shall be able to communicate fluently, both orally and in writing, in either French language or English language;
- c) In order to facilitate communications and participation in project meetings, proposed consultants shall be able to perform work related to a potential contract from a location in Canada¹.
- d) The Bidder must have a minimum of five (5) years experience in the past ten (10) years in the area of space mission analysis & design
- e) The Bidder must have a minimum of five (5) years experience in the past ten (10) years developing optical payloads^{2, 3}.
- f) The Bidder must have a minimum of five (5) years experience in the past ten (10) years in the area of satellite bus development or satellite integration and test.
- g) The Bidder must have a minimum of five (5) years experience in the past ten (10) years in the area of Quantum Cryptography (the application area of the QEYSSAT mission).

¹ Canada will not accept any travel and living expenses incurred by the Contractor as a consequence of any relocation of personnel required to satisfy the terms of the Contract.

² Payloads must have been intended for use in space. The same applies to every reference to “optical payload” within this document.

³ Only completed phase A studies and experiences with further advanced concepts are applicable.

D.2 TECHNICAL EVALUATION

Each Bid that meets the Mandatory Requirements specified in Section D.1, will receive a Technical Score according to the point-rated criteria as specified in Table D-1. The criteria are grouped under the following divisions:

1. Mission Criteria
2. Engineering Criteria; and
3. Management Criteria.

The evaluation of Mission Criteria 1.1 and 1.2 is based on actual explanations of understanding given in the Bid, while the evaluation of Mission Criteria 1.1 is based as well on the experience of the proposed consultants.

The number of proposed consultants must be restricted to a maximum of ten (10), and at least one of them needs to be employed by the Bidder itself. All proposed consultants must currently be full-time employees of the Bidder or its proposed subcontractors or partners.

The experience requested may include experience gained as a contractor, as a sub-contractor and/or as a research partner, i.e. in a different role than the role assumed for this Bid.

The evaluation of the Engineering Criteria 2.1, 2.2, 2.3 and 2.4 is based on the collective expertise of the proposed consultants.

The evaluation of Management Criteria 3.1 and 3.2 is based on the experience and capabilities of the corporate entities to which the maximum ten (10) proposed consultants belong. The evaluation of Management Criterion 3.3 is based only on the experience of, and the approach used by the proposed consultants.

Whenever reference is made to experience with the microsatellite class of satellites, the Bidder should refer to the CSA definition of the Microsatellite class provided in Appendix C of the Statement of Work (SOW) (ANNEX A).

Appendix A to this D contains all evaluation criteria, each supported by a set of 5 benchmark statements (0, A, B, C, D). Each of these statements has a corresponding relative value:

1. 0 = 0% of the maximum point rating
2. A = 25% of maximum point rating
3. B = 50% of maximum point rating
4. C = 75% of maximum point rating
5. D = 100% of maximum point rating

As an example, the maximum point rating for the *“Understanding of Scientific/Technical Principles and Challenges Specific to the QEYSSAT Microsatellite Mission.”* criterion is 20 points. If a Bid receives a “C” for this criterion in the evaluation process, the score attributed will be:

75% of 20 points = 15 points (score)

Table D-1 identifies:

- a) The maximum point rating assigned to each criterion;
- b) The minimum point rating required for each criterion;
- c) The maximum point rating possible for each division (Mission, Engineering and Management);
- d) The minimum point rating required for each division (Mission, Engineering and Management);
- e) The maximum point rating possible for the overall score; and
- f) The minimum point rating required for the overall score.

It should be noted that the sum of all minimum scores of individual divisions is lower than the minimum overall score required to allow flexibility in the scoring at the detailed level. In a similar way the sum of all minimum scores of individual criteria in a division is lower than the minimum score required for that division.

TABLE D-1 – LIST OF EVALUATION CRITERIA AND ASSOCIATED RATINGS

	Maximum Score	Minimum Score
1. Mission Criteria		
1.1. Experience in the area of Quantum Cryptography and understanding of the High-Level Mission Objectives of the QEYSSAT Microsatellite Mission.	20	10
1.2. Understanding of Scientific/Technical Principles and Challenges Specific to the QEYSSAT Microsatellite Mission.	20	10
<i>Maximum Score for Mission Criteria</i>	40	
<i>Minimum Score for Mission Criteria</i>	24	
2. Engineering Criteria		
2.1. Experience in Space Mission Analysis & Design and Concept Studies.	8	4
2.2. Experience in Optical Payload Design.	12	6
2.3. Experience in Satellite Bus, Integration and Test.	8	4
2.4. Experience in Space Mission Planning and Development.	12	9
<i>Maximum Score for Engineering Criteria</i>	40	
<i>Minimum Score for Engineering Criteria</i>	24	
3. Management Criteria		
3.1. Corporate Capabilities.	6	3
3.2. Corporate Management Expertise and Approach.	6	3
3.3. Project Management Experience and Approach.	8	4
<i>Maximum Score for Management Criteria</i>	20	
<i>Minimum Score for Management Criteria</i>	12	
<i>Maximum Overall Score</i>		
	100	
<i>Minimum Overall Score Requirement</i>		
	70	

D.3 FINANCIAL EVALUATION

There is no financial evaluation.

D.4 BASIS OF SELECTION

D.4.1 Evaluation Procedures

- a) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical evaluation criteria. There will be no financial evaluation.
- b) An evaluation team composed of representatives of the Canadian government will evaluate the bids.

D.4.2 Basis of Selection - Highest Rated

To be declared responsive, an offer must **At Bid closing time**

- a) comply with all the requirements of the bid solicitation;
- b) Meet all the Mandatory Requirements listed in Annex D, Section D.1;
- c) Obtain the required minimum scoring for the Point Rated Evaluation Criteria for each individual criterion, each division of criteria (Mission, Engineering and Management); and for the overall score, see Annex D, Section D.2.

Bids not meeting (a) or (b) or (c) will be declared non responsive.

Proposals will be evaluated based on the technical offer, excluding appendices E and F. Content in appendices E and F are for information only.

The number of pages of the **technical proposal is limited to 140 pages**, excluding appendices E and F.

The responsive bid with the highest number of points will be recommended for award of a contract.

In the event that more than one responsive bid has the same Technical Score, the responsive bid with the highest score for the Engineering Criteria division will be considered higher in ranking.

In the event that more than one responsive bid has the same Technical Score, as well as the same score for the Engineering Criteria division, the responsive bid with the highest score for Engineering Criteria 2.4 “Experience in Space Mission Planning and Development” will be considered higher in ranking.

Proposals will be selected as Steps described below:

Step 1: Responsive proposals will be evaluated according to the point-rated evaluation criteria in Section D.2.

The resulting “Technical Score” will be the overall score for the point-rated evaluation criteria, which is obtained as the sum of the “Mission”, “Engineering” and “Management” division scores.

Step 2: Responsive proposals will be ranked starting from the proposal with the highest Technical Score down to the lowest Technical Score resulting in a Responsive Proposal List.

Step 3: The highest ranking proposal will be selected for contract negotiation with CSA.

D.5 BIDDER'S SELF-EVALUATION

The Bidder is requested to provide a self-evaluation and substantiation, which must be submitted as appendix D to their Section I.

For each of the applicable criteria;

- 1) Select the benchmark statement (0, A, B, C or D) (as defined in Appendix A to this ANNEX D) that best represents the Bid being submitted;
- 2) Provide the corresponding Score as described in section D.2; and
- 3) Provide the substantiation for the selected benchmark statement and summarized cross-reference(s) to the Bid, if applicable.

In reference to point 3) above, the substantiation must be concise yet sufficiently comprehensive to ensure that the evaluators get a good overall appreciation of the Bid's merit relative to the specific criterion. Cross-references to appropriate sections of the Bid are acceptable provided that the essence of the referenced information is summarized in the substantiation.

For convenience, a template for the Self-Evaluation Matrix is provided in Table D-2. Enter each criterion number, the mark selected, the score and the substantiation. It is expected that approximately 300 words should be sufficient to make your case for the rating chosen in the substantiation column. Any documents that would support the substantiation should be added.

TABLE D-2 – SELF-EVALUATION MATRIX

Organization:			
Mission Selected for Proposal:			
Criteria	Mark	Score (Points)	Substantiation
<i>Ex.: 2.4 (Criterion number)</i>	<i>Ex.: C (75%) (Benchmark statement 0, A, B, C or D)</i>	<i>Ex.: 9 (75% of 12) (Mark X Rating) (See section D.2 of D)</i>	<i>Criterion substantiation and Bidder's Bid cross-reference. It is expected that 300 words or so should be sufficient to make your case for the rating chosen.</i>

APPENDIX A

Evaluation Criteria and Benchmark Statements

1. MISSION CRITERIA

1.1. EXPERIENCE IN THE AREA OF QUANTUM CRYPTOGRAPHY AND UNDERSTANDING OF THE HIGH-LEVEL MISSION OBJECTIVES OF THE QEYSSAT MICROSATELLITE MISSION.

This criterion assesses the proposed consultants' recent (within the last 10 years) experience with Quantum Cryptography and the degree to which the Bid exhibits an understanding of the high-level mission objectives of the QEYSSAT microsatellite mission.

0) Mission objectives and experience in Quantum Cryptography are not addressed.

- A) Poor: The Bid does not address experience in Quantum Cryptography. The Bid does not clearly identify the QEYSSAT mission objectives, or exhibits a limited understanding of these objectives. The Bid identifies at least one (1) potential end-user but does not address how the use of data from this mission could potentially benefit these end-users.
- B) Average: One proposed consultant has demonstrated at least three (3) years experience in the area of Quantum Cryptography. The Bid expands on the main QEYSSAT mission objectives, and exhibits a general understanding of these objectives. The Bid identifies at least one (1) potential end-user and poorly describes how the use of data from this mission could potentially benefit these end-users. The Bid elaborates on how variations in potential needs of the end-users influence the ultimate design of the mission and spacecraft.
- C) Good: One proposed consultant has demonstrated at least five (5) years experience in the area of Quantum Cryptography. The Bid adequately identifies and demonstrates understanding of the QEYSSAT mission objectives. The Bid identifies at least two (2) potential end-users and adequately describes how the use of data from this mission could potentially benefit these end-users. The Bid elaborates on how variations in potential needs of the end-users influence the ultimate design of the mission and spacecraft.
- D) Excellent: One proposed consultant has demonstrated at least eight (8) years experience in the area of Quantum Cryptography. The Bid includes an exhaustive identification and demonstrates understanding of the QEYSSAT mission objectives. The Bid identifies more than two (2) potential end-users and gives extensive descriptions of how the use of data from this mission could potentially benefit these end-users. The Bid elaborates in great detail on how variations in potential needs of the end-users influence the ultimate design of the mission and spacecraft, and gives examples to illustrate the explanations.

1.2. UNDERSTANDING OF SCIENTIFIC/TECHNICAL PRINCIPLES AND CHALLENGES SPECIFIC TO THE QEYSSAT MICROSATELLITE MISSION

This criterion assesses the degree to which the Bid identifies the underlying scientific/technical principles and challenges, and also to what extent it exhibits an understanding of these principles and challenges.

0) Scientific/technical principles and challenges specific to the QEYSSAT mission are not addressed.

- A) Poor: The Bid does not clearly identify the scientific/technical principles and challenges of the QEYSSAT microsatellite mission, or it exhibits a limited understanding of these principles and challenges.
- B) Average: The Bid expands on the scientific/technical principles and challenges specific to the QEYSSAT mission and of the fact that a microsatellite platform is used. The Bid exhibits a general understanding of these principles and challenges. References to previous work performed in this area are made but in a cursory manner.
- C) Good: The Bid adequately identifies and demonstrates understanding of the scientific/technical principles and challenges specific to the QEYSSAT mission and of the fact that a microsatellite platform is used for this mission. Comprehensive references to previous work performed in the area of microsatellites or the area of Quantum Cryptography or the payload area relevant to the QEYSSAT mission are made.
- D) Excellent: The Bid includes an exhaustive identification of and demonstrates understanding of the scientific/technical principles and challenges specific to the QEYSSAT mission and of the fact that a microsatellite platform is used for this mission. Comprehensive references to previous work performed in the area of microsatellites and the area of Quantum Cryptography and the payload area relevant to the QEYSSAT mission are made. Potential solutions to the challenges are proposed and substantiated.

2. ENGINEERING CRITERIA

The evaluation of the Engineering Criteria will only be based on the collective expertise of the individuals within the team proposed by the Bidder.

2.1. EXPERIENCE IN SPACE MISSION ANALYSES AND DESIGN AND CONCEPT STUDIES

This criterion assesses the Bidder's proposed team's recent (within the last 10 years) experience in undertaking satellite mission analyses and design (SMAD) and carrying out concept studies for space missions similar to the QEYSSAT mission.

- 0) The Bid does not address experience and capacity working with user requirements or high-level mission objectives and performing mission analyses and design to support the development of a mission.
 - A) Poor: The Bidder's proposed team has limited experience with translating, organizing and prioritizing high level user requirements into mission requirements and performing mission analyses and design leading to initial mission/payload/instrument concepts to support the development of a mission. No details are provided.
 - B) Average: The Bidder's proposed team has experience in translating, organizing and prioritizing high level user requirements into mission requirements and performing mission analyses and design leading to initial mission/system/payload concepts to support the development of a mission. However, the experience does not cover all aspect of the work or the experience of is not relevant (neither microsatellite mission nor payload similar to the QEYSSAT mission). The Bidder mentions examples to demonstrate the experience.
 - C) Good: The Bidder's proposed team has successful SMAD experience demonstrated in one satellite mission project that was either applied to a microsatellite, or had a payload similar to the QEYSSAT mission. The descriptions cover experience in translating, organizing and prioritizing high level user requirements into mission requirements and some experience in performing mission analyses and design leading to initial mission/system/payload concepts. The Bidder provides some detailed examples to demonstrate the experience.
 - D) Excellent: The Bidder's proposed team has successful SMAD experience demonstrated in at least two satellite mission projects of which at least one was applied to a microsatellite, and at least one had a payload similar to the QEYSSAT mission. The descriptions cover experience in translating, organizing and prioritizing high level user requirements into mission requirements and performing mission analyses and design leading to initial mission/system/payload concepts. The Bidder provides several detailed examples to demonstrate the experience.

2.2. EXPERIENCE IN OPTICAL PAYLOAD DESIGN

This criterion assesses the Bidder's proposed team's recent (within the last 10 years) experience in the design of optical payloads in the area relevant to the QEYSSAT mission.

- 0) The Bid does not address optical payload design experience.
 - A) Poor: The Bidder's proposed team has optical payload design activities completed but none of them are in the payload area relevant to the QEYSSAT mission.
 - B) Average: The Bidder's proposed team has at least one (1) optical payload design activity completed at the level of phase A study or higher in the payload area relevant to the QEYSSAT mission. The Bidder provides one or more examples to demonstrate the experience.
 - C) Good: The Bidder's proposed team has at least one (1) optical payload design activity completed at the level of phase A study or further, and at least one (1) other optical payload design activity at the level of phase B or further. At least one of the two payload design activities was in the payload area relevant to the QEYSSAT mission. The Bidder provides two or more examples to demonstrate the experience.
 - D) Excellent: The Bidder's proposed team has at least one (1) optical payload design activity completed at the level of phase A study or further, and at least one (1) other optical payload design completed and flown. At least one of the two payload design activities were in the payload area relevant to the QEYSSAT mission. At least one of these payload design activities was for a microsatellite platform. The Bidder provides two or more detailed examples to demonstrate the experience.

2.3. EXPERIENCE IN SATELLITE BUS, INTEGRATION AND TEST

This criterion assesses the Bidder's proposed team's recent (within the last 10 years) experience in the design and development of a satellite bus and the integration and test of a complete satellite, including the integration of a payload onto a spacecraft bus.

- 0) The Bid does neither address any experience in the development of a satellite bus, nor experience in the integration and test of a complete satellite.
 - A) Poor: The Bidder's proposed team has only one activity completed in either satellite bus development or satellite integration and test.
 - B) Average: The Bidder's proposed team has one activity successfully completed in satellite bus development and one activity successfully completed in satellite integration and test. Some examples are given to demonstrate the experience.
 - C) Good: The Bidder's proposed team has at least one satellite bus development activity and one satellite integration and test activity successfully completed for a microsatellite class satellite. Various examples are given to demonstrate the experience.
 - D) Excellent: The Bidder's proposed team has multiple satellite bus development and satellite integration and test activities successfully completed. At least one satellite bus development activity and one satellite integration and test activity has been successfully completed for a microsatellite class satellite. The Bidder provides various detailed examples to demonstrate the experience.

2.4. EXPERIENCE IN SPACE MISSION PLANNING AND DEVELOPMENT

This criterion assesses the Bidder's proposed team's recent (within the last 10 years) experience with space mission planning and development.

This criterion specifically addresses successful experience of the Bidder's proposed team in the following areas: developing bottom-up mission cost estimates; developing a mission schedule; performing a technology readiness assessment and developing a technology development plan; developing an overview of the development and manufacturing approach, including product assurance and quality control; performing a mission risk assessment; identifying potential collaborations; performing a identification of intellectual property that could be generated; providing an overview of a Canadian capabilities development strategy; and providing a preliminary commercialisation plan.

- 0) The Bid does not address experience in the areas listed above.
 - A) The Bid addresses limited experience in a few of the areas listed above.
 - B) The Bid addresses experience in part of the areas listed above.
 - C) The Bid addresses experience in all areas listed above.
 - D) The Bid addresses extensive experience in all areas listed above.

3. MANAGEMENT CRITERIA

3.1. CORPORATE CAPABILITIES

This criterion assesses the knowledge, experience, expertise and complementarities of the corporate entities to which the individuals of the proposed team belong, and the infrastructure and tools in place to perform the work.

- 0) No information about the capabilities of the Bidder's organization and Subcontractor and Partner's organizations is given.
 - A) Poor: Some of the organizations involved have a reasonable track record of successfully completing projects, however these projects are not of similar scope, complexity and technology. No details are given about the methods, processes or tools in place to successfully complete projects. It is unclear whether the organizations involved have a sufficiently large pool of employees to provide back-up for members of the proposed team.
 - B) Average: Some of the organizations involved have a good track record of successfully completing projects of similar scope, complexity and technology but no details are given about the methods, processes and tools* in place to successfully complete such projects. It is unclear whether the organizations involved have a sufficiently large pool of employees to provide back-up for members of the proposed team.
 - C) Good: Some of the organizations involved have a track record of successfully completing projects of similar scope, complexity and technology. The Bid contains some information about methods, processes and tools* in place to successfully complete such projects. Part of the organizations has a sufficiently large pool of employees to provide back-up for their member(s) of the proposed team.
 - D) Excellent: Each organization involved has a good track record of successfully completing projects of similar scope, complexity and technology as described in the current Statement of Work. The Bid demonstrates that each organization involved has the appropriate methods, processes and tools* in place to successfully complete such projects. Each organization has a sufficiently large pool of employees to provide back-up for their member(s) of the proposed team.

* Tools include key engineering software to perform space mission analyses & design, and simulation and analysis of high-level performance of payload instruments.

3.2. CORPORATE MANAGEMENT EXPERTISE AND APPROACH

This criterion assesses the management expertise and approach of the corporate entities to which the individuals of the proposed team belong.

- 0) No concrete method presented for coordination of the work, or tracking and controlling the progress.
 - A) Poor: The Bid demonstrates only little to no expertise in Project Management. The teaming arrangement at corporate level is not described. The Prime Contractor has little experience with subcontractors in the past. The Bidder has presented incomplete organization charts of some of the organizations involved.
 - B) Average: The Bid demonstrates some expertise in Project Management. The teaming arrangement at corporate level is only generally described. The Prime Contractor has had collaborations with a subcontractor in the past. The Bidder has presented organization charts of some of the organizations involved.
 - C) Good: The Bid demonstrates good expertise in Project Management by the Prime Contractor. The teaming arrangement at corporate level is described in detail. The Prime Contractor has had some successful collaborations with subcontractors in the past. Organization charts of all the organizations involved are presented.
 - D) Excellent: The Bid demonstrates good expertise in Project Management by the Prime Contractor as well as by sub-contractors and/or partners. The teaming arrangement at corporate level is described in detail and has been proven successful on one or more previous projects. The Prime Contractor has had several successful collaborations with subcontractors in the past. Organization charts of all the organizations involved are presented.

3.3. PROJECT MANAGEMENT EXPERIENCE AND APPROACH

This criterion assesses the proposed consultants' recent (within the last 10 years) experience in Project Management and evaluates the suggested approach to manage the work within the team.

- 0) No concrete method presented for coordination of the work, or tracking and controlling the progress.
 - A) Poor: The Bidder's proposed team has some experience in Project Management. Methods for coordinating the work, and tracking and controlling the progress are provided in a limited way and are not correlated to the work for this feasibility study contract. Roles and responsibilities of team members are not clearly defined.
 - B) Average: One proposed consultant has at least three (3) years of experience in Project Management. Overall, methods for coordinating the work, and tracking and controlling the progress are provided, but are not fully correlated to the work for this feasibility study contract. The roles and responsibilities are not clearly defined for all team members.
 - C) Good: One proposed consultant has at least three (3) years of experience in Project Management. The methods of coordinating the work, and tracking and controlling the progress of the team are well defined, and are correlated to the type of work for this feasibility study contract. The roles and responsibilities of all team members are clearly defined.
 - D) Excellent: One proposed consultant has at least five (5) years of experience in Project Management. The methods of coordinating the work, and tracking and controlling the progress of the team are logical and clearly outlined, and are correlated to the type of work for this feasibility study contract. The roles and responsibilities of all team members are clearly defined.