



**RETURN BIDS TO:  
RETOURNER LES SOUMISSIONS À:**

Réception des soumissions - TPSGC / Bid  
Receiving - PWGSC  
1550, Avenue d'Estimauville  
1550, D'Estimauville Avenue  
Québec  
Québec  
G1J 0C7

**REQUEST FOR PROPOSAL  
DEMANDE DE PROPOSITION**

**Proposal To: Public Works and Government  
Services Canada**

We hereby offer to sell to Her Majesty the Queen in right of Canada, in accordance with the terms and conditions set out herein, referred to herein or attached hereto, the goods, services, and construction listed herein and on any attached sheets at the price(s) set out therefor.

**Proposition aux: Travaux Publics et Services  
Gouvernementaux Canada**

Nous offrons par la présente de vendre à Sa Majesté la Reine du chef du Canada, aux conditions énoncées ou incluses par référence dans la présente et aux annexes ci-jointes, les biens, services et construction énumérés ici sur toute feuille ci-annexée, au(x) prix indiqué(s).

**Comments - Commentaires**

**Vendor/Firm Name and Address**

Raison sociale et adresse du  
fournisseur/de l'entrepreneur

**Issuing Office - Bureau de distribution**

TPSGC/PWGSC  
601-1550, Avenue d'Estimauville  
Québec  
Québec  
G1J 0C7

<b>Title - Sujet</b> SPECTROMÈTRE	
<b>Solicitation No. - N° de l'invitation</b> W7701-166096/C	<b>Date</b> 2016-01-14
<b>Client Reference No. - N° de référence du client</b> W7701-166096	
<b>GETS Reference No. - N° de référence de SEAG</b> PW-\$QCL-025-16671	
<b>File No. - N° de dossier</b> QCL-5-38132 (025)	<b>CCC No./N° CCC - FMS No./N° VME</b>
<b>Solicitation Closes - L'invitation prend fin</b> <b>at - à 02:00 PM</b> <b>on - le 2016-02-24</b>	<b>Time Zone</b> <b>Fuseau horaire</b> Heure Normale du l'Est HNE
<b>F.O.B. - F.A.B.</b> <b>Plant-Usine:</b> <input type="checkbox"/> <b>Destination:</b> <input type="checkbox"/> <b>Other-Autre:</b> <input type="checkbox"/>	
<b>Address Enquiries to: - Adresser toutes questions à:</b> Lemay, Hélène	<b>Buyer Id - Id de l'acheteur</b> qcl025
<b>Telephone No. - N° de téléphone</b> (418) 649-2974 ( )	<b>FAX No. - N° de FAX</b> (418) 648-2209
<b>Destination - of Goods, Services, and Construction:</b> <b>Destination - des biens, services et construction:</b> RDDC-R ET D DÉFENSE CANADA-VALCARTIER DRDC-DEFENCE R & D CANADA-VALCARTIE BATISSE 53 2459 ROUTE DE LA BRAVOURE QUEBEC Québec G3J1X5 Canada	

**Instructions: See Herein**

**Instructions: Voir aux présentes**

<b>Delivery Required - Livraison exigée</b> VOIR DOC	<b>Delivery Offered - Livraison proposée</b>
<b>Vendor/Firm Name and Address</b> <b>Raison sociale et adresse du fournisseur/de l'entrepreneur</b>	
<b>Telephone No. - N° de téléphone</b> <b>Facsimile No. - N° de télécopieur</b>	
<b>Name and title of person authorized to sign on behalf of Vendor/Firm</b> <b>(type or print)</b> <b>Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)</b>	
<b>Signature</b>	<b>Date</b>

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## PART 1 - GENERAL INFORMATION

### 1.1 Security requirement

There is no security requirement.

### 1.2 Requirement

To provide and deliver a new BioSense spectrometer to Defence Research and Development Canada - Valcartier Research Centre.

#### Background

BioSense is a platform capable of mapping/classifying the aerosols of the atmosphere. One of the technologies exploited by this platform is the spectral analysis of laser-induced fluorescence. A key module part of this technology is an imaging spectrometer. Since the delivery of the BioSense platform, imaging spectrometer technology has evolved in an important manner. Throughputs up to 5 times better with spectral resolutions up to 3 times narrower in comparison with the present BioSense spectrometer are commercially advertised. Such advances may have key impacts in the development of future systems of the CAF exploiting the capabilities demonstrated by the BioSense platform. The present statement of requirements aims at acquiring such new spectrometer and having it integrated in the BioSense platform for evaluation. To achieve this evaluation, only the spectrometer must be replaced. Therefore, the newly acquired spectrometer must be capable to accept the existing BioSense light input module (an optical fibre) at the spectrometer input port and the existing BioSense detector (an ICCD camera) at the spectrometer output port. Furthermore, an optical mask is also required to block out a part of the ICCD detector (the ICCD rows above and below the 'ICCD custom chip') to eliminate parasitic light rays. The specifications of the desired spectrometer as well as the optical fibres and ICCD camera to which the spectrometer must be integrated are described below in the requirement section.

#### Delivery Date

All the deliverables must be received **on or before May 13, 2016.**

#### Maximum Funding

The maximum funding available for the contract resulting from the bid solicitation is **\$50,000.00 CAD** (Applicable Taxes extra, as appropriate). Canadian customs duties and excise taxes must be included. **Bids valued in excess of this amount will be considered non-responsive.** This disclosure does not commit Canada to pay the maximum funding available.

### 1.3 Debriefings

Bidders may request a debriefing on the results of the bid solicitation process. Bidders should make the request to the Contracting Authority within 15 working days from receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

### 1.4 Trade Agreement

The requirement is subject to the provisions of the North American Free Trade Agreement (NAFTA) and of the Agreement on Internal Trade (AIT).

## **PART 2 - BIDDER INSTRUCTIONS**

### **2.1 Standard Instructions, Clauses and Conditions**

All instructions, clauses and conditions identified in the bid solicitation by number, date and title are set out in the *Standard Acquisition Clauses and Conditions Manual* (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

Bidders who submit a bid agree to be bound by the instructions, clauses and conditions of the bid solicitation and accept the clauses and conditions of the resulting contract.

The 2003 (2015-09-03) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

#### **2.1.1 SACC Manual Clauses**

B1000T (2014-06-26), Condition of Material

### **2.2 Submission of Bids**

Bids must be submitted only to Public Works and Government Services Canada (PWGSC) Bid Receiving Unit by the date, time and place indicated on page 1 of the bid solicitation.

Bid Receiving  
PWGSC  
601-1550, D'Estimauville avenue  
Quebec, Quebec  
G1J 0C7

Bids transmitted by facsimile (418-648-2209) to PWGSC will be accepted.

### **2.3 Enquiries - Bid Solicitation**

All enquiries must be submitted in writing to the Contracting Authority no later than Seven (7) calendar days before the bid closing date. Enquiries received after that time may not be answered.

Bidders should reference as accurately as possible the numbered item of the bid solicitation to which the enquiry relates. Care should be taken by Bidders to explain each question in sufficient detail in order to enable Canada to provide an accurate answer. Technical enquiries that are of a proprietary nature must be clearly marked "proprietary" at each relevant item. Items identified as "proprietary" will be treated as such except where Canada determines that the enquiry is not of a proprietary nature. Canada may edit the question(s) or may request that the Bidder do so, so that the proprietary nature of the question(s) is eliminated and the enquiry can be answered to all Bidders. Enquiries not submitted in a form that can be distributed to all Bidders may not be answered by Canada.

### **2.4 Applicable Laws**

Any resulting contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Quebec.

Bidders may, at their discretion, substitute the applicable laws of a Canadian province or territory of their choice without affecting the validity of their bid, by deleting the name of the Canadian province or territory specified and inserting the name of the Canadian province or territory of their choice. If no change is made, it acknowledges that the applicable laws specified are acceptable to the Bidders.

## 2.5 Improvement of Requirement During Solicitation Period

Should bidders consider that the specifications or Statement of Work contained in the bid solicitation could be improved technically or technologically, bidders are invited to make suggestions, in writing, to the Contracting Authority named in the bid solicitation. Bidders must clearly outline the suggested improvement as well as the reason for the suggestion. Suggestions that do not restrict the level of competition nor favour a particular bidder will be given consideration provided they are submitted to the Contracting Authority at least seven (7) days before the bid closing date. Canada will have the right to accept or reject any or all suggestions.

## 2.6 Maximum Funding

The maximum funding available for the contract resulting from the bid solicitation is **\$50,000.00 CAD** (Applicable Taxes extra, as appropriate). Canadian customs duties and excise taxes must be included. **Bids valued in excess of this amount will be considered non responsive.** This disclosure does not commit Canada to pay the maximum funding available.

## **PART 3 - BID PREPARATION INSTRUCTIONS**

### **3.1 Bid Preparation Instructions**

Canada requests that Bidders provide their bid in separately bound sections as follows:

Section I: Technical Bid (2 hard copies)  
Section II: Financial Bid (1 hard copy)  
Section III: Certifications and Additional Information (1 hard copy)

Prices must appear in the financial bid only. No prices must be indicated in any other section of the bid.

Canada requests that Bidders follow the format instructions described below in the preparation of their bid:

- (a) use 8.5 x 11 inch (216 mm x 279 mm) paper;
- (b) use a numbering system that corresponds to the bid solicitation.

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process [Policy on Green Procurement](http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html) (<http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html>). To assist Canada in reaching its objectives, Bidders should:

- 1) use 8.5 x 11 inch (216 mm x 279 mm) paper containing fibre certified as originating from a sustainably-managed forest and containing minimum 30% recycled content; and
- 2) use an environmentally-preferable format including black and white printing instead of colour printing, printing double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

#### **Section I: Technical Bid**

In their technical bid, Bidders should demonstrate and explain how they will meet these requirements. Bidders should demonstrate and describe how they will carry out the work.

The technical bid should address clearly and in sufficient depth the points that are subject to the evaluation criteria against which the bid will be evaluated. Simply repeating the statement contained in the bid solicitation is not sufficient. In order to facilitate the evaluation of the bid, Canada requests that Bidders address and present topics in the order of the evaluation criteria under the same headings. To avoid duplication, Bidders may refer to different sections of their bids by identifying the specific paragraph and page number where the subject topic has already been addressed.

#### **Section II: Financial Bid**

Bidders must submit their financial bid in accordance with the Basis of Payment in Annex "B". The total amount of Applicable Taxes must be shown separately.

##### **3.1.1 Exchange Rate Fluctuation**

C3011T (2013-11-06), Exchange Rate Fluctuation

#### **Section III: Certifications and Additional Information**

Bidders must submit the certifications and additional information required under Part 5.

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## PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

### 4.1 Evaluation Procedures

- (a) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria.
- (b) An evaluation team composed of representatives of Canada will evaluate the bids.

#### 4.1.1 Technical Evaluation

##### 4.1.1.1 Mandatory and Point Rated Technical Criteria

Refer to Attachment 1, Mandatory and Point Rated Technical Criteria.

#### 4.1.2 Financial Evaluation

##### 4.1.2.1 Mandatory Financial Criteria

Bidders must submit a firm, all inclusive lot price for the requirement, which must not exceed the maximum funding specified in Part 2 (**\$50,000.00 CAD Applicable Taxes extra, as appropriate**). Canadian customs duties and excise taxes must be included.

##### 4.1.2.2 Evaluation of Price

The price of the offer will be evaluated as follows:

- a) Canadian-based bidders must submit firm prices, Canadian customs duties and excise taxes included, and Applicable Taxes excluded.
- b) Bids submitted in foreign currency will be converted to Canadian currency for evaluation purposes. The rate given by the Bank of Canada in effect on the date of signature of the bid (by the Bidder) will be applied as a conversion factor to the bids submitted in foreign currency. If no signature date is indicated, solicitation closing date will be applied as a conversion factor to the bids submitted in foreign currency. Canadian customs duties and excise taxes must be included.
- c) Bidders must provide prices DDP (Incoterm 2000) at Defence Research and Development Canada- Valcartier Research Center, located at 2459 boul. Pie-XI North, Quebec, Quebec, G3J 1X5 (DRDC location). Bids will be assessed on a DDP (Incoterm 2000) basis.

### 4.2. Basis of Selection

#### 4.2.1 Basis of Selection - Highest Combined Rating of Technical Merit and Price - Highest Combined Rating of Technical Merit and Price

- 1. To be declared responsive, a bid must:
  - (a) comply with all the requirements of the bid solicitation; and
  - (b) meet all mandatory criteria.

2. Bids not meeting (a) or (b) will be declared non-responsive.
3. The selection will be based on the highest responsive combined rating of technical merit and price. The ratio will be 80 % for the technical merit and 20 % for the price.
4. To establish the technical merit score, the overall technical score for each responsive bid will be determined as follows: total number of points obtained / maximum number of points available multiplied by the ratio of 80 %.
5. To establish the pricing score, each responsive bid will be prorated against the lowest evaluated price and the ratio of 20%.
6. For each responsive bid, the technical merit score and the pricing score will be added to determine its combined rating.
7. Neither the responsive bid obtaining the highest technical score nor the one with the lowest evaluated price will necessarily be accepted. The responsive bid with the highest combined rating of technical merit and price will be recommended for award of a contract.

**Example:**

The table below illustrates an example where all three bids are responsive and the selection of the contractor is determined by a 80/20 ratio of technical merit and price, respectively. The total available points equals 45 and the lowest evaluated price is \$30,000.00 CAD.

	<b>Bidder</b>		
	<b>Bidder 1</b>	<b>Bidder 2</b>	<b>Bidder 3</b>
<b>Overall Technical Score</b>	30/45	40/45	0/45
<b>Bid Evaluated Price</b>	40,000.00 \$	45,000.00 \$	30,000.00 \$
	<b>Calculations</b>		
<b>Technical Merit Score</b>	$30/45 \times 80 = 53.33$	$40/45 \times 80 = 71.11$	$0/45 \times 80 = 0$
<b>Pricing Score</b>	$30\,000/40\,000 \times 20 = 15$	$30\,000/45\,000 \times 20 = 13.33$	$30\,000/30\,000 \times 20 = 20$
<b>Combined Rating</b>	68.33	84.44	20
<b>Overall Rating</b>	<b>2nd</b>	<b>1st</b>	<b>3rd</b>



## **PART 5 – CERTIFICATIONS AND ADDITIONAL INFORMATION**

Bidders must provide the required certifications and additional information to be awarded a contract.

The certifications provided by Bidders to Canada are subject to verification by Canada at all times. Canada will declare a bid non-responsive, or will declare a contractor in default if any certification made by the Bidder is found to be untrue, whether made knowingly or unknowingly, during the bid evaluation period or during the contract period.

The Contracting Authority will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply and to cooperate with any request or requirement imposed by the Contracting Authority will render the bid non-responsive or constitute a default under the Contract.

### **5.1 Certifications Required with the Bid**

Bidders must submit the following duly completed certifications as part of their bid.

#### **5.1.1 Declaration of Convicted Offences**

As applicable, pursuant to subsection Declaration of Convicted Offences of section 01 of the Standard Instructions, the Bidder must provide with its bid, a completed Declaration Form (<http://www.tpsgc-pwgsc.gc.ca/ci-if/formulaire-form-eng.html>), to be given further consideration in the procurement process.

#### **5.1.2 Bidder Certifies that All Equipment and Software is “Off-the-Shelf”**

Any equipment bid to meet this requirement must be “off-the-shelf” (unless otherwise stated in this bid solicitation), meaning that each item of equipment is commercially available and requires no further research or development and is part of an existing product line with a field-proven operational history (that is, it has not simply been tested in a laboratory or experimental environment). If any of the equipment bid is a fully compatible extension of a field-proven product line, it must have been publicly announced on or before the bid closing date. By submitting a bid, the Bidder is certifying that all the equipment bid is off-the-shelf.

### **5.2 Certifications Precedent to Contract Award and Additional Information**

The certifications and additional information listed below should be submitted with the bid but may be submitted afterwards. If any of these required certifications or additional information is not completed and submitted as requested, the Contracting Authority will inform the Bidder of a time frame within which to provide the information. Failure to provide the certifications or the additional information listed below within the time frame specified will render the bid non-responsive.

#### **5.2.1 Integrity Provisions – List of Names**

Bidders who are incorporated, including those bidding as a joint venture, must provide a complete list of names of all individuals who are currently directors of the Bidder.

Bidders bidding as sole proprietorship, as well as those bidding as a joint venture, must provide the name of the owner(s).

Bidders bidding as societies, firms or partnerships do not need to provide lists of names.

## 5.2.2 Federal Contractors Program for Employment Equity - Bid Certification

By submitting a bid, the Bidder certifies that the Bidder, and any of the Bidder's members if the Bidder is a Joint Venture, is not named on the Federal Contractors Program (FCP) for employment equity "FCP Limited Eligibility to Bid" list ([http://www.labour.gc.ca/eng/standards\\_equity/eq/emp/fcp/list/inelig.shtml](http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml)) available from Employment and Social Development Canada (ESDC) - Labour's website.

Canada will have the right to declare a bid non-responsive if the Bidder, or any member of the Bidder if the Bidder is a Joint Venture, appears on the "FCP Limited Eligibility to Bid" list at the time of contract award.

## 5.2.3 Financial Capability

SACC *Manual* clause A9033T (2012-07-16) Financial Capability

## 5.2.4 Contractor's Representative

### Administrative representative :

Name :

Telephone :

Facsimile :

Email :

### Technical representative :

Name :

Telephone :

Facsimile :

Email :

## PART 6 - RESULTING CONTRACT CLAUSES

The following clauses and conditions apply to and form part of any contract resulting from the bid solicitation.

### 6.1 Security Requirement

There is no security requirement applicable to this Contract.

### 6.2 Requirement

The Contractor must provide and deliver a one (1) new BioSense Spectrometer in accordance with the Annex A - Requirements and the Contractor's technical bid entitled \_\_\_\_\_, dated \_\_\_\_\_ **(to be completed by Canada at contract award)**.

### 6.3 Standard Clauses and Conditions

All clauses and conditions identified in the Contract by number, date and title are set out in the Standard Acquisition Clauses and Conditions Manual(<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

#### 6.3.1 General Conditions

2010A (2015-09-03), General condition - Goods (Medium Complexity), apply to and form part of the Contract.

#### 6.3.2 Supplemental General Conditions

4001 (2015-04-01), Hardware Purchase, Lease and Maintenance

#### 6.3.3 Paragraph 10, Acceptance, of Supplemental General Conditions 4001 is amended as follow:

1. The Hardware, including all the Work related to it, is subject to acceptance by Canada. As part of its acceptance process, Canada may test any function of the Hardware to determine whether it meets the Specifications. If any of the Work does not meet the requirements of the Contract, Canada may reject it or require that it be corrected at the Contractor's expense before accepting it. No payments for the Hardware are due under the Contract unless the Hardware is accepted.
2. Acceptance by Canada does not relieve the Contractor of its responsibility for defects in the Hardware or other failures to meet the requirements of the Contract or of its warranty or maintenance obligations under the Contract.
3. Except where section 9 applies, the procedure for acceptance will be as follows:
  - a. the Contractor must notify the Contracting Authority in writing once the Hardware is Ready for Use by referring to this provision of the Contract and requesting acceptance of the Work;
  - b. Canada will have six (6) months to perform its acceptance procedures (the "Acceptance Period"); and
  - c. if Canada provides notice of any deficiency during the Acceptance Period, the Contractor must address the deficiency at no cost to Canada as soon as possible and notify Canada in writing once the Work is complete, at which time Canada will be entitled to re-inspect the Work and the Acceptance Period will start again.

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4. Despite *Supplemental General Conditions* 4002 and 4003, if either or both apply to the Contract, if the Contract states that the System consists of the Hardware together with Licensed Software and/or Custom Software, the period for conducting any acceptance tests for the System, including any Licensed Software and any Custom Software components of the System, will be the acceptance period for the Hardware specified in these supplemental general conditions.

#### **6.3.4 SACC Manual Clause K0031C (2015-02-25) Warranty- Contractor responsible for all costs**

The Contractor must pay the transportation cost associated with returning the Work or any part of the Work to the Contractor's plant for replacement, repair or making good. The Contractor must also pay the transportation cost associated with forwarding the replacement or returning the Work or part of the Work when rectified to the delivery point specified in the Contract or to another location as directed by Canada. If, in the opinion of Canada, it is not expedient to remove the Work from its location, the Contractor must carry out any necessary repair or making good of the Work at that location. In such cases, the Contractor will be responsible for all Costs (including travel and living expenses) incurred in so doing, Canada will not reimburse these Costs.

All other provisions of the warranty section remain in effect.

### **6.4 Term of Contract**

#### **6.4.1 Period of the Contract**

The period of the Contract begins on the date of Contract and ends of the warranty of **all the deliverables**.

#### **6.4.2 Delivery Date**

All the deliverables must be received on or before May 13, 2016.

## 6.5 Authorities

### 6.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Hélène Lemay  
Supply Officer  
Public Works and Government Services Canada  
Acquisitions Branch  
1550, D'Estimauville Avenue  
Québec (Québec) G1J 0C7

Telephone: (418) 649-2974  
Facsimile: (418) 648-2209  
E-mail: Helene.lemay@pwgsc-tpsgc.gc.ca

The Contracting Authority is responsible for the management of the Contract and any changes to the Contract must be authorized in writing by the Contracting Authority. The Contractor must not perform work in excess of or outside the scope of the Contract based on verbal or written requests or instructions from anybody other than the Contracting Authority.

### 6.5.2 Technical Authority *(to be completed by Canada at contract award)*

The Technical Authority for the Contract is:

Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Organization: \_\_\_\_\_  
Address: \_\_\_\_\_

Telephone: \_\_\_\_-\_\_\_\_-\_\_\_\_\_  
Facsimile: \_\_\_\_-\_\_\_\_-\_\_\_\_\_  
E-mail address: \_\_\_\_\_

The Technical Authority named above is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all matters concerning the technical content of the Work under the Contract. Technical matters may be discussed with the Technical Authority, however the Technical Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of the Work can only be made through a contract amendment issued by the Contracting Authority.

### 6.5.3 Contractor's Representative

#### Administrative representative :

Name :  
Telephone :  
Facsimile :  
Email :

#### Technical representative :

Name :  
Telephone :  
Facsimile :  
Email :

## 6.6 Payment

### 6.6.1 Basis of Payment

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid a firm lot price, as specified in Annex B - Basis of Payment for a cost of \_\_\_\_\_ (***amount to be inserted by Canada at contract award***). Customs duties are included and Goods and Services Tax or Harmonized Sales Tax is extra, if applicable.

Canada will not pay the Contractor for any design changes, modifications or interpretations of the Work, unless they have been approved, in writing, by the Contracting Authority before their incorporation into the Work.

### 6.6.2 Limitation of price

SACC Manual Clause C6000C (2011-05-16), Limitation of Price

### 6.6.3 Multiple Payments

SACC Manual Clause H1001C (2008-05-12), Multiple Payments

### 6.6.4 SACC Manual Clauses

C2000C (2007-11-30), Taxes - Foreign-based Contractor (*to be deleted if the contractor is a Canadian Contractor*)

### 6.6.5 Shipping Instructions - Delivery at Destination

Goods must be consigned to the destination specified in the Contract and delivered:

Delivered Duty Paid (DDP) at Defence Research and Development Canada - Valcartier Research Center, located at 2459 boul. Pie-XI North, Quebec, Quebec, Canada, G3J 1X5 (DRDC location), Incoterms 2000 for shipments from a commercial contractor.

### 6.6.6 Liquidated damages

1. If the Contractor fails to deliver the goods within the time specified in the Contract, the Contractor agrees to pay to Canada liquidated damages in the amount of 1 percent of the total Contract price for each calendar day of delay. The total amount of the liquidated damages must not exceed 10 percent of the contract price.
2. Canada and the Contractor agree that the amount stated above is their best pre-estimate of the loss to Canada in the event of such a failure, and that it is not intended to be, nor is it to be interpreted as, a penalty.
3. Canada will have the right to hold back, drawback, deduct or set off from and against the amounts of any monies owing at any time by Canada to the Contractor, any liquidated damages owing and unpaid under this section.

Nothing in this section must be interpreted as limiting the rights and remedies which Canada may otherwise have under the Contract.

## 6.7 Invoicing Instructions

1. The Contractor must submit invoices in accordance with the section entitled "Invoice Submission" of the general conditions. Invoices cannot be submitted until all work identified in the invoice is completed.

Each invoice must be supported by:

- a. a copy of time sheets to support the time claimed;
  - b. a copy of the release document and any other documents as specified in the Contract;
  - c. a copy of the invoices, receipts, vouchers for all direct expenses, and all travel and living expenses;
  - d. a copy of the monthly progress report.
2. Invoices must be distributed as follows:
    - a. The original and one (1) copy must be forwarded to the address shown on page 1 of the Contract for certification and payment.

## 6.8 Certifications

### 6.8.1 Compliance

The continuous compliance with the certifications provided by the Contractor in its bid and the ongoing cooperation in providing additional information are conditions of the Contract. Certifications are subject to verification by Canada during the entire period of the Contract. If the Contractor does not comply with any certification, fails to provide the additional information, or if it is determined that any certification made by the Contractor in its bid is untrue, whether made knowingly or unknowingly, Canada has the right, pursuant to the default provision of the Contract, to terminate the Contract for default.

## 6.9 Applicable Laws

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Quebec.

## 6.10 Priority of Documents

If there is a discrepancy between the wording of any documents that appear on the list, the wording of the document that first appears on the list has priority over the wording of any document that subsequently appears on the list.

- (a) the Articles of Agreement;
- (b) the supplemental general conditions 4001 (2015-04-01), Hardware Purchase, Lease and Maintenance;
- (c) the general conditions 2010A (2015-09-03), General condition - Goods (Medium Complexity), apply to and form part of the Contract;
- (e) Annex A, Requirement;
- (f) Annex B, Basis of Payment;
- (g) the Contractor's bid dated \_\_\_\_\_.

## **6.11 Defence Contract**

*SACC Manual* clause A9006C (2012-07-16) Defence Contract

## **6.12 Foreign Nationals (Canadian Contractor *OR* Foreign Contractor)**

*SACC Manual* clause A2000C (2006-06-16) Foreign Nationals (Canadian Contractor)

***OR***

*SACC Manual* clause A2001C (2006-06-16) Foreign Nationals (Foreign Contractor)

## **6.13 Insurance Requirements**

*SACC Manual* clause G1005C (2008-05-12) Insurance

## **6.14 Site Regulations**

The Contractor must comply with all standing orders or other regulations, instructions and directives in force on the site where the Work is performed.

## **6.15 Visit to Contractor Facilities**

The contractor authorizes Canada, through its representative, to visit its facilities to monitor work progress as many times as required. The visits to Contractor facilities will take place at the expense of Canada.



## ANNEX "A"

### REQUIREMENT

#### 1. TITLE

#### NEW BIOSENSE SPECTROMETER

#### 2. BACKGROUND

BioSense is a platform capable of mapping/classifying the aerosols of the atmosphere. One of the technologies exploited by this platform is the spectral analysis of laser-induced fluorescence. A key module part of this technology is an imaging spectrometer. Since the delivery of the BioSense platform, imaging spectrometer technology has evolved in an important manner. Throughputs up to 5 times better with spectral resolutions up to 3 times narrower in comparison with the present BioSense spectrometer are commercially advertised. Such advances may have key impacts in the development of future systems of the CAF exploiting the capabilities demonstrated by the BioSense platform. The present statement of requirements aims at acquiring such spectrometer. This spectrometer will be subsequently integrated in the BioSense platform for evaluation. To achieve this evaluation, only the spectrometer must be replaced. Therefore, the newly acquired spectrometer must be capable to accept the existing BioSense light input module (an optical fibre) at the spectrometer input port and the existing BioSense detector (an ICCD camera) at the spectrometer output port. Furthermore, an optical mask is also requested as an option to block out a part of the ICCD detector (the ICCD rows above and below the 'ICCD custom chip') to eliminate parasitic light rays. The specifications of the desired spectrometer as well as the optical fibres and the ICCD camera to which the spectrometer must be integrated are described below in the requirement section.

#### 3. ACRONYMS and definitions

CCD	Charge-Coupled Device
FWHM	Full Width Half Magnitude
H	Height
ICCD	Intensified Charge-Coupled Device
'ICCD custom chip'	Sub-area of the ICCD exploited to collect spectra
f#	f-number
kg	Kilogram
L	Lenght
NA	Numerical aperture
nm	Nanometer
pixel	Individual detector of the CCD
SMA	Standard type of optical fibre connector
W	Width

#### 4. APPLICABLE DOCUMENTS & REFERENCES

**Pimax\_1024\_Rev03.pdf:** Technical specifications of the PI-MAX: 1024 ICCD specified by the client and to which the desired spectrometer must be integrated.

## 5. Mandatory REQUIREMENTS

### Minimal Spectrometer Performances (minimal characteristics of the targeted spectral dispersion system):

1. **Spectral range:** 370-650 nm (this spectral range must be centered and all included within the 18mm intensified area of the pre-defined ICCD custom chip, see items 2 and 3 of the Source/Detector specifications and the explanatory paragraph below);
2. **Minimal spectral resolution (FWHM):**  $\leq 4$  nm (200  $\mu$ m fibre core diameter);  $\leq 10$  nm (500  $\mu$ m fibre core diameter);
3. **Minimal spectral throughput:**  $\geq 10\%$  (370-400 nm);  $\geq 20\%$  (400-650 nm); includes spectrometer transmission/reflection optics + grating efficiency + f# matching;
4. **SMA male adapter with vertical micro-positioner (along CCD columns):** allow positioning the diffracted spectra within the ICCD custom chip of 50 rows (see description below);
5. **Size of the spectrometer:**  $\leq 10''$ (L);  $\leq 8''$ (W);  $\leq 7''$ (H);
6. **Weight of the spectrometer:**  $\leq 7$  kg;

The proposed spectrometer must be adapted to the existing light sources and detector. Here are their characteristics.

### Source/Detector specifications (existing source/detector that must fit at the entrance/exit ports of the spectrometer):

1. **Light sources:** 200  $\mu$ m or 500  $\mu$ m core traditional silica-silica optical fibers; SMA 905 connector (equipped with z translation capability); f#=2.22 (NA=0.22);
2. **Detector:** Princeton ICCD PI-MAX camera: 1024; 1024x256 pixels; 26x26  $\mu$ m<sup>2</sup> pixels; 18 mm GEN III filmless HB photocathode; P46 phosphor screen; see 'Pimax\_1024\_Rev03.pdf' reference document;
3. **ICCD custom chip:** rows 103-153 (a fixed block of 50 CCD rows with some software customizable vertical positioning flexibility but ideally centered at mid-height of the CCD column, see the explanatory paragraph below).

The 'ICCD custom chip' is a fixed number of 50 CCD rows of the PI-MAX: 1024 ICCD (see reference document attached to this call for proposal), ideally located at mid-height of the CCD chip, that are binned, row-per-row, by the CCD readout electronics to obtain the 1-dimensionnal detected spectrum. To better isolate the 'ICCD custom chip', a dummy row is placed below and above the 'ICCD custom chip'. These 2 dummy rows are not binned with the 50 rows of the 'ICCD custom chip'. To avoid polluting the signal collected by 'ICCD custom chip' during readout (the 'ICCD custom chip' is shifted down by 51 rows between each exposure when being readout), a mask limiting the light exposure of the camera chip to the 'ICCD custom chip' region to collect only the spectral signal of interest is requested as an option that is the object of a point-rated evaluation criterion. To center the vertical position of the spectrum on the 'ICCD custom chip' at the spectrometer output imaging port, the SMA male adaptor at the spectrometer input port must be equipped with a vertical micro-positioning capability (translation along the CCD columns, themselves perpendicular to the spectral axis). The use of this 'ICCD custom chip' allows an ICCD readout rate of 400 Hz, a readout rate imposed by other components of the BioSense platform.

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## 6. DELIVERABLES

1. Spectrometer
2. Diffraction grating
3. SMA fiber adapter with height adjuster
4. ICCD Flange kit
5. Mask limiting exposure to the 50 rows of the ICCD custom chip (optional)

Items 1-3 are to be delivered already mounted as a single unit. Item 4 is delivered as an accessory and is to be mounted by the client. Item 5, the (optional) optical mask, may be mounted as part of item 1-3, part of item 4 or as a standalone component. In either case, the contractor must provide instructions to mount and dismount items 4 and 5 (if proposed) from the items 1-3.

## 7. DATE OF DELIVERY

Items 1-5 detailed in the Deliverables section should be delivered within a single shipment.

## 8. LANGUAGE OF WORK

English or French.

## 9. DELIVERY LOCATION

Defence Research and Development Canada – Valcartier Research Centre  
Building 53  
2459, Pie-XI blvd North  
Québec, Qc  
G3J 1X5  
Canada

## 10. TRAVEL

The Contractor is not required to travel.

## 11 MEETINGS

Not required.

## 12 GOVERNMENT SUPPLIED MATERIAL (GSM)

None.

## 13. GOVERNMENT FURNISHED EQUIPMENT (GFE)

None.

## 14. SPECIAL CONSIDERATIONS

None.

## 15. SECURITY

All work is unclassified and the Contractor will not have access to any classified information.

N° de l'invitation - Solicitation No.

**W7701-166096/A**

N° de réf. du client - Client Ref. No.

W7701-16-6096

N° de la modif - Amd. No.

File No. - N° du dossier  
QCL-5-38132

Id de l'acheteur - Buyer ID

**QCL025**

N° CCC / CCC No./ N° VME - FMS

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## **APPENDIX I**

### **Technical specifications of the PI-MAX Camera**

**ANNEX "B"****BASIS OF PAYMENT**

Article	Description	Delivery	Firm Lot Price	Payment	Currency
1	<b>Firm, all inclusive lot price</b> for all the deliverables described at Annex A – Requirement.  Brand: _____ Model: _____	<u><b>Date of delivery:</b></u> <u>Desired delivery date:</u> On or before March 31, 2016 <u><b>Maximum delivery Date:</b></u> No later than May 13, 2016  Best delivery date: _____	_____ \$ (Applicable Taxes extra, as appropriate and Canadian customs duties and excise taxes must be included.)	50% of the Total Firm Price at delivery	_____
				50% of the Total Firm Price at the acceptance of the Good by Canada	

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**ATTACHMENT 1****MANDATORY AND POINT RATED TECHNICAL CRITERIA****1. MANDATORY TECHNICAL CRITERION**

At bid closing time, the Bidder must comply with the following mandatory technical criterion and **provide the necessary documentation to support compliance**. Any bid which fails to meet the following mandatory technical criterion will be declared non-responsive:

In their proposals, bidders must demonstrate they meet all mandatory specifications mentioned in Table 1 and 2 below. All information must be elaborated in a data sheet or any other technical document in which each of the specifications is clearly stated and demonstrated (**Please refer to Part 3 of this solicitation, Part 3 Bid Preparation Instructions, paragraph 3.1, Section I: "Technical Bid"**)

**Failure to meet any of the specification will render the bid non-compliant and it will be given no further consideration.**

Bidder should provide with his bid this attachment or other document and prove how he is compliant with each criteria. In particular, bidders will have to state the portions of the spectrometer throughput (criterion M3) that are attributed to the optical components, the grating diffraction efficiency and the f# matching. Note that the evaluation of the portion of the spectrometer throughput associated with the f# matching must be based on a uniform irradiance cone exiting the optical fiber at the entrance port of the spectrometer. This defines the throughput associated with the f# matching as follow:

$$\text{Throughput (f\# matching)} = \begin{cases} 1 & \text{if f\#} \leq 2.22 \\ (2.22/\text{f\#})^2 & \text{if f\#} > 2.22 \end{cases}$$

where 2.22 and f# are the f-number of traditional silica-silica optical fibers (NA=0.22) and of the spectrometer proposed by the bidder, respectively.

**Table 1: Spectrometer minimal performances (minimal characteristics of the desired spectral dispersion system)**

	CRITERIA	MET	NOT MET	Explanations and technical references
M1	<b>Spectral range:</b> 370-650 nm (this spectral range must be centered and all included within the 18mm intensified area of the pre-defined ICCD custom chip, see criteria M9);			
M2	<b>Spectral resolution (FWHM):</b> ≤ 4 nm (200 um core fibre); ≤ 10 nm (500 um core fibre);			
M3	<b>Minimal spectral throughput<sup>1</sup>:</b> ≥ 10% (370-400 nm); ≥ 20% (400-650 nm); includes spectrometer transmission/reflection optics + grating efficiency + f# matching;			
M4	<b>SMA male adapter with vertical micro-positioner (along CCD columns):</b> allow adjusting the position the diffracted spectra within the ICCD custom chip (see criteria M9 and the explanation below);			
M5	<b>Size of the spectrometer:</b> ≤ 10"(L); ≤ 8"(W); ≤ 7"(H)			
M6	<b>Weight of the spectrometer:</b> ≤ 7 kg			

**Table 2: Source/detector specifications (existing source/detector that must fit at the entrance/exit ports of the spectrometer; these are predefined by the client)**

	SPECIFICATIONS TO SUPPORT	MET	NOT MET	Explanations and technical references
M7	<b>Light source:</b> 200 um or 500 um core traditional silica-silica optical fibers; SMA 905 connector (equipped with z translation capability); f# = 2.22 (NA=0.22)			
M8	<b>Detector:</b> Princeton ICCD camera PI-MAX: 1024; 1024x256 pixels; 26x26 um <sup>2</sup> pixels; 18 mm GEN III filmless HB photocathode; P46 phosphor screen; see 'Pimax_1024_Rev03.pdf' reference document			
M9	<b>'ICCD custom chip':</b> rows 103-153 (a fixed block of 50 CCD rows with some software customizable vertical positioning flexibility but ideally centered at mid-height of the CCD column)			

The 'ICCD custom chip' is a fixed number of 50 rows of the PI-MAX: 1024 ICCD (see reference document), ideally located at mid-height of the CCD chip, that are binned, row-per-row, by the CCD readout electronics to obtain a 1-dimensionnal detected spectrum. To better isolate the 'ICCD custom chip', a dummy row is placed below and above the 'ICCD custom chip'. These 2 dummy rows are not binned with the 50 rows of the 'ICCD custom chip'. To avoid polluting the signal collected by 'ICCD custom chip' during readout (the 'ICCD custom chip' is shifted down by 51 rows between each exposure when being readout), a mask limiting the light exposure of the camera chip to the 'ICCD custom chip' region to collect only the spectral signal of interest is requested as an option that is the object of a point-rated evaluation criteria of section 2 below. To adjust the position of the spectrum of interest within the

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spectrometer output imaging plane, the SMA male adaptor at the spectrometer input port must be equipped with a vertical micro-positioning capability (translation along the CCD columns, themselves perpendicular to the spectral axis). The use of this 'ICCD custom chip' allows an ICCD readout rate of 400 Hz, a readout rate imposed by other components of the BioSense platform.



## 2. POINT RATED TECHNICAL CRITERIA

Bidders must indicate and demonstrate\* how their bid satisfies each of the proposed point rated technical criteria in order to obtain points specified.

All information should be elaborated in a data sheet or any other technical document in which each of the criteria is clearly stated. The bidder will obtain a number of points associated with the point rated technical criteria to be implemented on the BioSense spectrometer, up to the stated maximum number of points. The spectral resolution and optical throughput of the proposed spectrometers are particularly important requirements. Therefore, bidder's specifications that outperform the minimums stated by the mandatory criteria will obtain points.

**\*Please refer to Part 3 of this solicitation, Part 3 Bid Preparation Instructions, paragraph 3.1, Section I: "Technical Bid".**

All information should be elaborated in a data sheet or any other technical document in which each of the criteria is clearly stated and demonstrated. In particular, bidders will have to state the portions of the spectrometer throughput (criteria P1 to P4) that are attributed to the optical components (lenses and mirrors), the grating diffraction efficiency and the f# matching. The same model describing the assessment of the throughput associated with the f# matching presented in the section of the mandatory criteria must be used by the bidders.

POINT-RATED EVALUATION CRITERIA		Notes
P1	<b>Minimal spectral throughput:</b> $\geq 15\%$ and $< 25\%$ (370-400 nm); includes spectrometer transmission/reflection optics + grating efficiency + f# matching;	5 pts
P2	<b>Minimal spectral throughput:</b> $\geq 25\%$ (370-400 nm); includes spectrometer transmission/reflection optics + grating efficiency + f# matching;	10 pts
P3	<b>Minimal spectral throughput:</b> $\geq 25\%$ and $< 35\%$ (400-650 nm); includes spectrometer transmission/reflection optics + grating efficiency + f# matching;	5 pts
P4	<b>Minimal spectral throughput:</b> $\geq 35\%$ (400-650 nm); includes spectrometer transmission/reflection optics + grating efficiency + f# matching;	10 pts
P5	<b>Spectral resolution (FWHM):</b> $\leq 3.5\text{nm}$ and $> 3\text{nm}$ (with a 200 $\mu\text{m}$ fibre core diameter);	5 pts
P6	<b>Spectral resolution (FWHM):</b> $\leq 3\text{nm}$ (with a 200 $\mu\text{m}$ fibre core diameter);	10 pts
P7	<b>Spectral resolution (FWHM):</b> $\leq 8.75\text{nm}$ and $> 8\text{nm}$ (with a 500 $\mu\text{m}$ fibre core diameter);	5 pts
P8	<b>Spectral resolution (FWHM):</b> $\leq 8\text{nm}$ and $> 7.5\text{nm}$ (with a 500 $\mu\text{m}$ fibre core diameter);	10 pts
P9	<b>Spectral resolution (FWHM):</b> $\leq 7.5\text{nm}$ (with a 500 $\mu\text{m}$ fibre core diameter);	15 pts
P10	<b>An optical mask limiting spectral light exposure to the 'ICCD custom chip' is proposed by the bidder;</b> this mask, located at the spectrometer output imaging plane, must not be fixed permanently but be withdrawn if needed when dismounting the ICCD camera from the spectrometer;	15 pts
<b>Maximum Score:</b>		<b>90 pts</b>

## PI-MAX: 1024



The PI-MAX: 1024 from Princeton Instruments/Acton is a high performance intensified camera system featuring a spectroscopy format CCD. It is fiber optically coupled to a variety of Gen II, Gen III and Gen III *filmless* intensifiers. These intensifiers offer the highest possible sensitivity from UV to NIR and offer resolution that is ideally matched to the CCD. Sub nano-second gating capability and integrated programmable timing generator (PTG) make these ICCD cameras ideal for time-resolved spectroscopy applications.

**PI-MAX: 1024 is specifically designed for time resolved spectroscopy applications and is available with 25-mm intensifiers for wide spectral coverage.**

**Applications:** Fluorescence Lifetime Imaging Microscopy (FLIM), Time Resolved Imaging and Spectroscopy, Combustion, Planar Laser Induced Fluorescence (PLIF), Pulsed Raman.

Features	Benefits
1024 x 256 Imaging Array	Ideal aspect ratio for spectroscopy
Dual speed, 16-bit digitization	High speed provides rapid image acquisition for focusing. Low speed operation provides the best signal-to-noise ratio
Thermo-electric Cooling	Reduces dark current to negligible levels
A wide selection of Intensifiers	Best sensitivity and gate speed in the desired wavelength range.
Gen II	Best combination of UV-Blue sensitivity and fast gating (SB). RB provides wide spectral coverage.
Gen III	Ideal for Blue (350nm)-NIR (900nm) range. Unigen™ intensifier provides the widest wavelength coverage from UV to NIR.
Gen III <i>filmless</i>	Offers highest sensitivity and fastest gate speed.
Fiberoptic coupling	Highest optical throughput possible; No vignetting
Sub-nano second gating	Temporal resolution for effective background discrimination, kinetics imaging and spectroscopy
Built-in high voltage pulser	Rugged, integrated design for minimal insertion delay
Programmable Timing Generator™ (PTG)	Built-in, fully software controlled gate timing; Controls gate widths and delays in linear, or exponential increments; Low insertion delay (25nsec)
USB 2.0 Interface	Seamless, plug-n-play connection to PC desktops and laptops
PCI Interface	Industry standard for fast data transfer over long distances
WinSpec/WinView and PVCAM®	Offers powerful, easy-to use set of Windows GUI controls; Automatic data acquisition, analysis and display; PVCAM provides unified programming interface for custom programming
LabVIEW™ Scientific Imaging Tool Kit (SITK™)	Pre-defined LabView vis provide easy integration of the camera into complex experiment setup

## PI-MAX: 1024 Specifications

**CCD**

Image sensor	e2v CCD30-11 scientific grade, MPP front-illuminated CCD		
CCD format	1024 x 256 imaging pixels 26 x 26- $\mu$ m pixels 18 mm x 6.7 mm (using 18-mm intensifier) 25 mm x 6.7 mm (central region using 25-mm intensifier)		
	Minimum	Typical	Maximum
System read noise @ 100-kHz digitization @ 1-MHz digitization		8 e- rms 15 e- rms	12 e- rms 20 e- rms
Pixel Full Well	450 ke-	500 ke-	
Dark current (e-/p/sec) @ -20°C		5	10
Deepest cooling temperature	-20°C (air cooled); -35°C (with water circulation)		
Vertical Shift Rate	15 $\mu$ sec/row (variable via software)		
Spectral Rate	185 Hz, full vertical binning 630 Hz, 200 $\mu$ m tall spectrum		

**Intensifier**

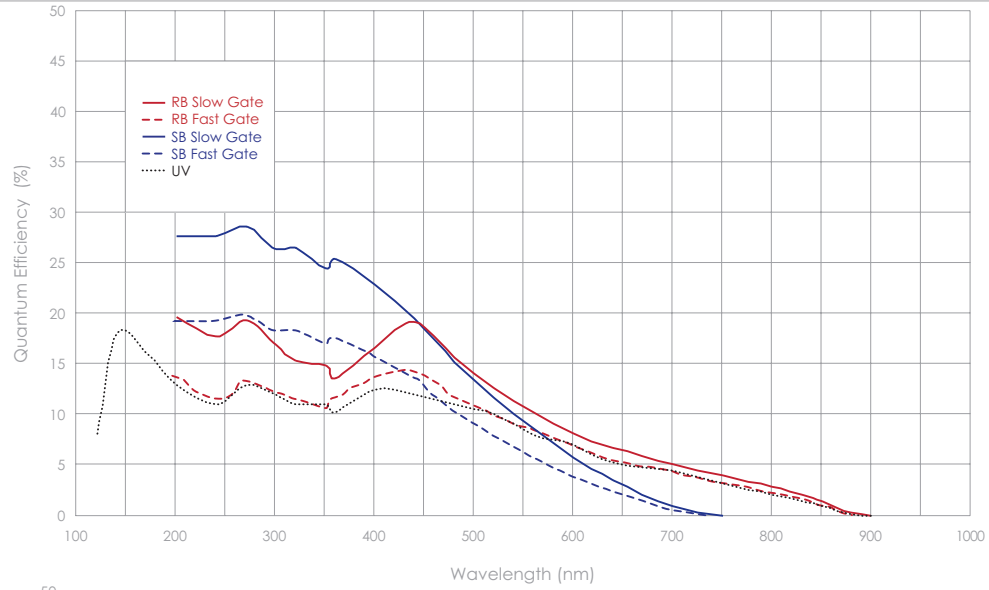
Intensifiers available	18mm & 25mm - Gen II, Gen III , Gen III <i>filmless</i>							
Method of coupling to the CCD	1:1 fiber optic							
Intensifier type	Gen II			Gen III			Gen III <i>filmless</i>	
	UV	SB	RB	Unigen	HB	HQ	HBf	HQf
Intensifier Input Window	MgF <sub>l</sub> <sub>2</sub>	Quartz		Fiber	BK7 Glass		Borosilicate Glass	
Wavelength Range	See QE Curves							
Minimum Gate Speed (optical FWHM) Fast Gate Slow Gate	< 2nsec(500 ps*) < 50 nsec (< 9 nsec with MCP gating**)			< 5nsec -NA-			< 2nsec (500 ps) -NA-	
Repetition Rate: sustained/burst (kHz)	50/500			5/50			50/500	
Resolution limit	54 to 64 lp/mm			64 to 72 lp/mm			57 to 64 lp/mm	
EBI (Photo e-/pixel/sec)	0.05 - 0.2			0.05 - 0.2			0.02	
Phosphor	P43 (P46 optional)							

Notes: All specifications subject to change.

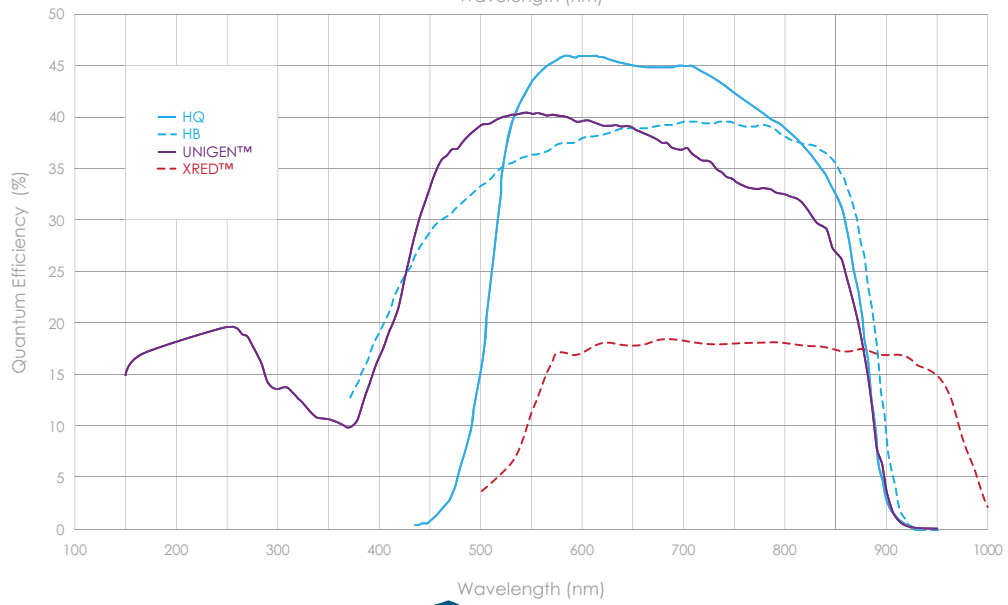
\* Enquire about the ultra-fast gating option

\*\* SB slow gate tubes are offered with special MCP Gating (MG) option to achieve &lt; 9 nsec gate width and &gt;25% QE in the UV-blue region.

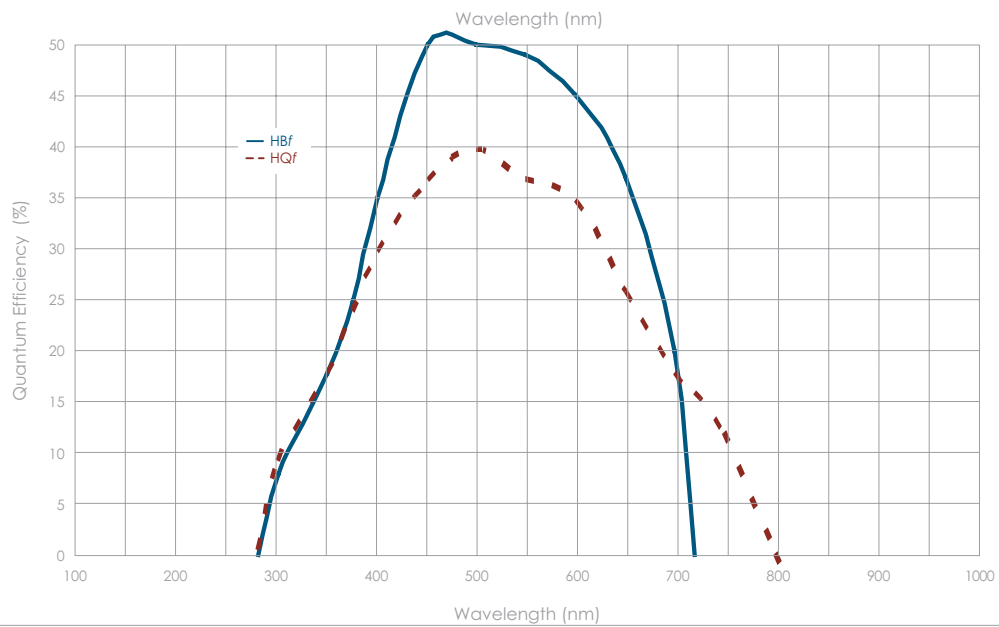
Gen II Intensifiers

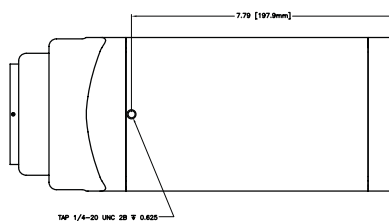
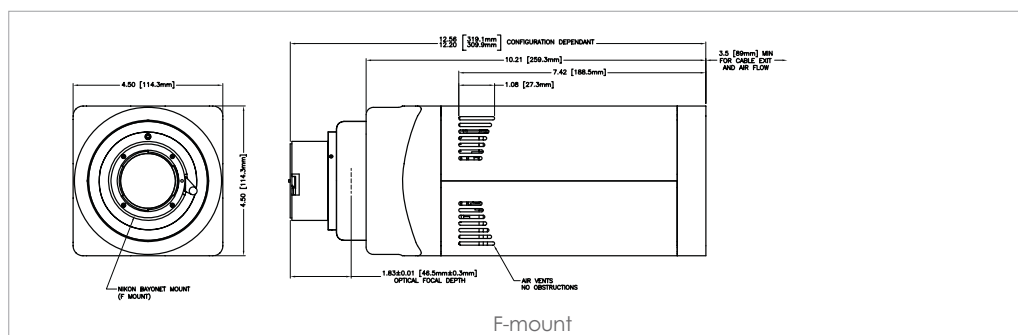
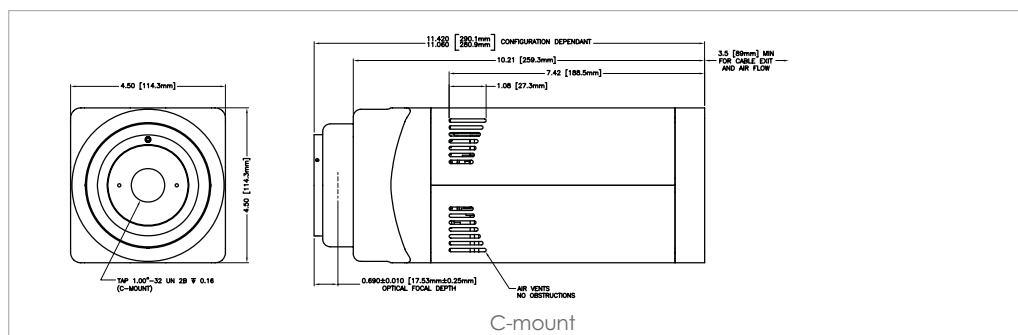
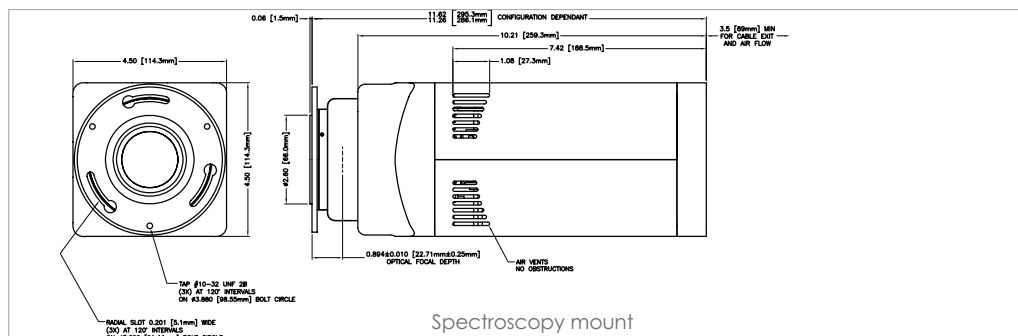


Gen III Intensifiers



Gen III filmless Intensifiers





Bottom View showing tapped hole for tripod mount

Princeton Instruments

PI-ACTON

[www.piaction.com](http://www.piaction.com)

email: [moreinfo@piaction.com](mailto:moreinfo@piaction.com)

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