



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

**Bid Receiving - PWGSC / Réception des
soumissions - TPSGC**
11 Laurier St. / 11, rue Laurier
Place du Portage, Phase III
Core 0B2 / Noyau 0B2
Gatineau, Québec K1A 0S5
Bid Fax: (819) 997-9776

**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

Electrical & Electronics Products Division
L'Esplanade Laurier
East Tower, 4th floor,
Ottawa
Ontario
K1A 0S5

Title - Sujet 5G Base Station Simulator	
Solicitation No. - N° de l'invitation U4030-209032/A	Date 2019-11-13
Client Reference No. - N° de référence du client U4030-209032	
GETS Reference No. - N° de référence de SEAG PW-\$\$HN-336-77995	
File No. - N° de dossier hn336.U4030-209032	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2020-01-06	
Time Zone Fuseau horaire Eastern Standard Time EST	
F.O.B. - F.A.B. Specified Herein - Précisé dans les présentes Plant-Usine: <input type="checkbox"/> Destination: <input type="checkbox"/> Other-Autre: <input checked="" type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Bisson, Phillipe	Buyer Id - Id de l'acheteur hn336
Telephone No. - N° de téléphone (613) 295-8641 ()	FAX No. - N° de FAX () -
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: CERTIFICATION AND ENGINEERING BUREAU 3701 CARLING AVE., BLDG 94 OTTAWA Ontario K2H8S2 Canada	

Instructions: See Herein

Instructions: Voir aux présentes

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

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ANNEX A - STATEMENT OF REQUIREMENT
ANNEX B - BASIS OF PAYMENT

PART 1 - GENERAL INFORMATION

1.1 Security Requirements

There is no security requirement associated with the requirement.

1.2 Statement of Requirement

The contractor must provide the goods and services in accordance with the technical requirements stated in Annex A.

1.2.1 Delivery Requirement

Delivery is requested to be completed by March 22, 2020.

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 Agreements

The requirement is subject to the provisions of the World Trade Organization Agreement on Government Procurement (WTO-AGP), the North American Free Trade Agreement (NAFTA), the Canada-European Union Comprehensive Economic and Trade Agreement (CETA), and the Canadian Free Trade Agreement (CFTA).

1.5 epost Connect service

This bid solicitation allows bidders to use the epost Connect service provided by Canada Post Corporation to transmit their bid electronically. Bidders must refer to Part 2 entitled Bidder Instructions, and Part 3 entitled Bid Preparation Instructions, of the bid solicitation, for further information.

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) (<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](#) (2019-03-04) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

Subsection 5.4 of [2003](#), Standard Instructions - Goods or Services - Competitive Requirements, is amended as follows:

Delete: 60 days
Insert: 90 days

2.1.1 SACC Manual Clauses

SACC Reference	Section	Date
A9033T	Financial Capability	2012-07-16
B1000T	Condition of Material	2014-06-26

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 in the bid solicitation.

Note: For bidders choosing to submit using epost Connect for bids closing at the Bid Receiving Unit in the National Capital Region (NCR) the email address is:

tpsgc.dgareceptiondessoumissions-abbidreceiving.pwgsc@tpsgc-pwgsc.gc.ca

Note: Bids will not be accepted if emailed directly to this email address. This email address is to be used to open an epost Connect conversation, as detailed in Standard Instructions [2003](#), or to send bids through an epost Connect message if the bidder is using its own licensing agreement for epost Connect.

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 Ontario.

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File No. - N° du dossier

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Buyer ID - Id de l'acheteur

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CCC No./N° CCC - FMS No./N° VME

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.

PART 3 - BID PREPARATION INSTRUCTIONS

3.1 Bid Preparation Instructions

- If the Bidder chooses to submit its bid electronically, Canada requests that the Bidder submits its bid in accordance with section 08 of the 2003 standard instructions. The epost Connect system has a limit of 1GB per single message posted and a limit of 20GB per conversation.

The bid must be gathered per section and separated as follows:

Section I: Technical Bid
Section II: Financial Bid
Section III: Certifications

- If the Bidder chooses to submit its bid in hard copies, Canada requests that the Bidder submits its bid in separately bound sections as follows:

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

If there is a discrepancy between the wording of the soft copy on electronic media and the hard copy, the wording of the hard copy will have priority over the wording of the soft copy.

- If the Bidder is simultaneously providing copies of its bid using multiple acceptable delivery methods, and if there is a discrepancy between the wording of any of these copies and the electronic copy provided through epost Connect service, the wording of the electronic copy provided through epost Connect service will have priority over the wording of the other copies.

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 hard copy 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](https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=32573) (<https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=32573>). 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 explain and demonstrate how they propose to meet the requirements and how they will carry out the Work.

Section II: Financial Bid

Bidders must submit their financial bid in accordance with the Basis of Payment.

3.1.1 Electronic Payment of Invoices – Bid

If you are willing to accept payment of invoices by Electronic Payment Instruments, identify which ones are accepted.

- ☐ () VISA Acquisition Card;
- ☐ () MasterCard Acquisition Card;
- ☐ () Direct Deposit (Domestic and International);
- ☐ () Electronic Data Interchange (EDI);
- ☐ () Wire Transfer (International Only);
- ☐ () Large Value Transfer System (LVTS) (Over \$25M)

If none are chosen, it will be considered as if Electronic Payment Instruments are not being accepted for payment of invoices.

Acceptance of Electronic Payment Instruments will not be considered as an evaluation criterion.

3.1.2 Exchange Rate Fluctuation

The requirement does not offer exchange rate fluctuation risk mitigation. Requests for exchange rate fluctuation risk mitigation will not be considered. All bids including such provision will render the bid non-responsive.

3.1.3 Pricing - Multi-Item Bid Solicitation

Bidders must quote a price for every item in the bid solicitation in order to be evaluated. Bidders may withdraw their entire bid after closing but prior to contract award by advising in writing the Contracting Authority.

Section III: Certifications

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

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

You are reminded that this solicitation requires the compliance and/or completion of requirements attached as an Annex and forming part of this document.

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

All bids must be completed in full and provide all of the information requested in the bid solicitation to enable full and complete evaluation.

4.1.1.1 Mandatory Technical Criteria

The following Mandatory requirements must be submitted with the bid for evaluation

- Technical compliance herein;

4.1.2 Financial Evaluation

The following Mandatory factors will be taken into consideration in the evaluation of each offer:

- Compliance with Pricing Basis;

The Offer price will be determined by processing items at Annex B as follows:

- a. Sum of all items total price (unit price x qty.)

4.1.2.1 Pricing Basis

The bidder must quote firm unit prices in Canadian dollars, DDP Delivered Duty Paid (Ottawa, ON), Applicable Taxes extra, as applicable. Freight charges to destination and all applicable Custom duties and Excise taxes must be included.

4.2 Basis of Selection

A bid must comply with the requirements of the bid solicitation and meet all mandatory technical evaluation criteria to be declared responsive. The responsive bid with the lowest evaluated price on an aggregate basis will be recommended for award of a contract.

Please note:

*Bidders must bid on firm and optional portions of this requirement

** Only one (1) contract will be awarded following

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. Unless specified otherwise, 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 Integrity Provisions - Declaration of Convicted Offences

In accordance with the Integrity Provisions of the Standard Instructions, all bidders must provide with their bid, **if applicable**, the declaration form available on the [Forms for the Integrity Regime](http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html) website (<http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html>), to be given further consideration in the procurement process.

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 provided will render the bid non-responsive.

5.2.1 Integrity Provisions – Required Documentation

In accordance with the section titled Information to be provided when bidding, contracting or entering into a real procurement agreement of the [Ineligibility and Suspension Policy](http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html) (<http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html>), the Bidder must provide the required documentation, as applicable, to be given further consideration in the procurement process.

5.2.2 General Environmental Criteria Certification

The Bidder must select and complete one of the following two certification statements.

- A) The Bidder certifies that the Bidder is registered or meets ISO 14001.

Bidders' Authorized Representative Signature

Date

OR

- B) The Bidder certifies that the Bidder meets and will continue to meet throughout the duration of the contract, a minimum of four (4) out of six (6) criteria identified in the table below.

The Bidder must indicate which four (4) criteria, as a minimum, are met.

Green Practices within the Bidders' organization	Insert a checkmark for each criterion that is met
Promotes a paperless environment through directives, procedures and/or programs	

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All documents are printed double sided and in black and white for day to day business activity unless otherwise specified by your client	
Paper used for day to day business activity has a minimum of 30% recycled content and has a sustainable forestry management certification	
Utilizes environmentally preferable inks and purchase remanufactured ink cartridges or ink cartridges that can be returned to the manufacturer for reuse and recycling for day to day business activity.	
Recycling bins for paper, newsprint, plastic and aluminum containers available and emptied regularly in accordance with local recycling program.	
A minimum of 50% of office equipment has an energy efficient certification.	

Bidders' Authorized Representative Signature

Date

5.2.3 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 available at the bottom of the page of the [Employment and Social Development Canada \(ESDC\) - Labour's](https://www.canada.ca/en/employment-social-development/canada/esdc/labour's) website (<https://www.canada.ca/en/employment-social-development/programs/employment-equity/federal-contractor-program.html#>).

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.

5.2.4 Additional Certifications Precedent to Contract Award

5.2.4.1 Education and Experience

SACC Manual clause [A3010T](#) (2010-08-16) Education and Experience

The Bidder certifies that all the information provided in the résumés and supporting material submitted with its bid, particularly the information pertaining to education, achievements, experience and work history, has been verified by the Bidder to be true and accurate. Furthermore, the Bidder warrants that every individual proposed by the Bidder for the requirement is capable of performing the Work described in the resulting contract.

Signature

Date

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 Requirements

There is no security requirement applicable to the Contract.

6.2 Statement of Requirement

The contractor must provide the goods and services in accordance with the technical requirements and quantities stated in Annex A.

6.2.1 Optional Goods and/or Services

The Contractor grants to Canada the irrevocable option to acquire the goods, services or both described at Annex A (section 2, Option to Purchase) of the Contract under the same conditions and at the prices and/or rates stated in the Contract. The option may only be exercised by the Contracting Authority and will be evidenced, for administrative purposes only, in whole or in part, through a contract amendment.

The Contracting Authority may exercise the option at any time before March 31, 2022 by sending a written notice to the Contractor.

6.2.2 SACC Manual Clauses

SACC Reference	Section	Date
B1501C	Electrical Equipment	2018-06-21
B7500C	Excess Goods	2006-06-16

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 \(https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual\)](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](#) (2018-06-21), General Conditions - Goods (Medium Complexity), apply to and form part of the Contract.

6.4 Term of Contract

6.4.1 Delivery Date

All the deliverables must be received on or before _____ (Delivery as offered and as accepted will be inserted at contract award).

6.5 Authorities

6.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Phillipe Bisson – Supply Specialist

Public Works and Government Services Canada - Acquisitions Branch
Logistics, Electrical, Fuel and Transportation Directorate - "HN" Division
Building L'Esplanade Laurier, East Tower 140 O'Connor St, 4th floor, Ottawa ON K1A 0R5

Telephone:

E-mail address: Phillipe.bisson@tpsgc-pwgsc.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

The Technical Authority for the Contract is: (will be inserted at contract)

Name: _____
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 Procurement authority

The Procurement Authority for the Contract is: (will be inserted at contract)

Name: _____
Telephone: _____
Facsimile: _____
E-mail address: _____

The Procurement Authority is the representative of the department or agency for whom the Work is being carried out under the Contract. The Procurement Authority is responsible for the implementation of tools and processes required for the administration of the Contract. The Contractor may discuss administrative matters identified in the Contract with the Procurement Authority however the Procurement Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of Work can only be made through a contract amendment issued by the Contracting Authority.

6.5.4 Contractor's Representative

(Name and telephone number of the person responsible for: (will be inserted at contract))

General enquiries

Name: _____
Telephone: _____
Facsimile: _____
E-mail: _____

Delivery follow-up

Name: _____
Telephone: _____
Facsimile: _____
Facsimile: _____

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 firm unit prices, as specified in Annex B for a cost of \$ _____ (insert the amount at contract award). Customs duties are included and Applicable Taxes are extra.

6.6.2 Limitation of Price

SACC Manual clause C6000C (2017-08-17) Limitation of Price

6.6.3 Multiple Payments

SACC Manual clause H1001C (2008-05-12) Multiple Payments

6.6.4 Insurance - No Specific Requirement

SACC Manual clause G1005C (2016-01-28) Insurance - No Specific Requirement

6.6.5 Electronic Payment of Invoices – Contract

The Contractor accepts to be paid using any of the following Electronic Payment Instrument(s):

- a. Visa Acquisition Card;
- b. MasterCard Acquisition Card;
- c. Direct Deposit (Domestic and International);
- d. Electronic Data Interchange (EDI);
- e. Wire Transfer (International Only);
- f. Large Value Transfer System (LVTS) (Over \$25M)

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.
2. Invoices must be distributed as follows:
 - (a) The original and one (1) copy must be forwarded to the following address for certification and payment:
 - Certification and Engineering Bureau
3701 Carling Ave., Bldg 94
Ottawa, ON, Canada
K2H 8S2
Attention: David Hill
 - (b) One (1) copy must be forwarded to the Contracting Authority identified under the Section 5. Authorities

6.8 Certifications and Additional Information

6.8.1 Compliance

Unless specified otherwise, the continuous compliance with the certifications provided by the Contractor in its bid or precedent to contract award, and the ongoing cooperation in providing additional information are conditions of the Contract and failure to comply will constitute the Contractor in default. Certifications are subject to verification by Canada during the entire period of the Contract.

6.9 Applicable Laws

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in _____ (*insert the name of the province or territory as specified by the Bidder in its bid, if applicable*).

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.

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- (a) the Articles of Agreement;
- (b) the general conditions 2010A (2018-06-21);
- (c) Annex A, Statement of Requirement;
- (d) Annex B, Basis of Payment;
- (e) the Contractor's bid dated _____, as clarified on _____, as amended on _____

6.11 SACC Manual Clauses (Delivery)

SACC Reference	Section	Date
<u>D9002C</u>	Incomplete Assemblies	2007-11-30

6.12 Shipping Instructions - Delivery at Destination

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

Delivered Duty Paid (DDP) to "Certification and Engineering Bureau, 3701 Carling Ave., Bldg 94, Ottawa ON, K2H 8S2" Incoterms 2000 for shipments from a commercial contractor.

ANNEX A STATEMENT OF REQUIREMENT FOR 5G Base Station Simulator

Client Organization: Innovation, Science and Economic Development Canada-Certification and Engineering Bureau (see sec. 1.9.3 for full address)

Equipment requirement: 5G Base Station Simulator

Purchase Methodology: Competitive process via PSPC

Contract close / delivery deadline: On or before March 23rd, 2020 at 3:00pm

Summary of Goods and Service Requirements and Specifications for:

5G Base Station Simulator (Qty.x1)

General Requirement Preamble

The Certification & Engineering Bureau (CEB) requires a 5G Base Station Simulator in order to carry out regulatory compliance testing, standards development activities as well as measurement studies.

Equipment Specification Requirements:

A turnkey 5G Base Station Simulator is a “ready for use” system that emulates the communication characteristics of a cellular telephone base station for both 5G New Radio (NR) Standalone (SA) and Non-standalone (NSA) technologies. The system must be capable of communicating in a “loopback”, “network” or “signalling” condition that supports a stable communication link between the base station simulator and wireless communications devices. The system can be comprised of separate instruments combined to meet the requirements. The system must contain a component with a visual display and a user interface.

The specification requirement is for hardware and software that will allow base station network simulation and measurements between the Base Station Simulator and a device under test (DUT) that are capable of sub-6 GHz, also known as Frequency Range 1 (FR1), 5G 3GPP Release 15 New Radio (NR) Standalone (SA) and Non-standalone (NSA) basic communications and RF measurements. Complex protocol testing is not required.

1) Mandatory Requirements

1.1) General Hardware Specifications

1.1.1. Frequency Range

Specification requirement:

- The frequency range must be from 450 MHz or less to 6 GHz or more.

1.1.2. Generator Hardware Specifications

1.1.2.1 Maximum RF Output Power

Specification requirement:

- The maximum RF output power over the frequency range of the system must be greater than or equal to -10 dBm.

1.1.2.2 Generator Level Accuracy

Specification requirement:

- The generator level accuracy over the entire frequency range of the system must not exceed ± 2.5 dB.

1.1.2.3 Generator Amplitude Resolution

Specification requirement:

- The generator amplitude resolution over the entire frequency range of the system must be less than or equal to 0.1 dB.

1.1.2.4 Generator Display Frequency Resolution

Specification requirement:

- The generator frequency resolution over the entire frequency range of the system must be less than or equal to 100 kHz.

1.1.3. Analyzer Hardware Specifications

1.1.3.1 Maximum RF Input Power

Specification requirement:

- The maximum RF output power over the frequency range of the system must be greater than or equal to 0 dBm.

1.1.3.2 Analyzer Level Accuracy

Specification requirement:

- The analyzer level accuracy over the entire frequency range of the system must not exceed ± 3 dB.

1.1.3.3 Analyzer Amplitude Resolution

Specification requirement:

- The analyzer amplitude resolution over the entire frequency range of the system must be less than or equal to 0.1 dB.

1.1.3.4 Display Analyzer Frequency Resolution

Specification requirement:

- The frequency resolution over the entire frequency range of the system must be less than or equal to 100 kHz.

1.2) 5G Requirements

1.2.1. 5G New Radio (NR) Non-standalone (NSA) Network Connectivity

Specification requirement:

- The system must be capable of wirelessly connecting to a device in a 5G NR NSA mode as described in 3GPP Release 15 in both Time Division Duplex (TDD) and Frequency Division Duplex (FDD) technologies over the FR1 frequency bands specified in 3Gpp Release 15.

1.2.2. 5G New Radio (NR) Standalone (SA) Network Connectivity

Specification requirement:

- The system must be capable of wirelessly connecting to a device in a 5G NR SA mode as described in 3GPP Release 15 in both Time Division Duplex (TDD) and Frequency Division Duplex (FDD) technologies over the FR1 frequency bands specified in 3GPP Release 15.

1.2.3. 5G New Radio (NR) Measurement

Specification requirement:

- The system must perform basic RF measurements such as but not limited to RF output power measurements with the system wirelessly connected to a device in a 5G NR NSA or SA mode in either TDD or FDD over the frequency range of the system.

1.3) Long Term Evolution (LTE) Requirements

1.3.1. Technology, Modulation and Resource Block (RB) Configuration

Specification requirement:

- The LTE portion of the base station simulator system must be capable of providing all necessary configuration options to the end user for modulations which includes, as a minimum QPSK, 16QAM, 64-QAM and necessary 1, 50% and 100% Resource Block (RB) allocations. As a minimum, the following reference document must be used to determine the required settings: the most recent version of the Federal Communications Commission (FCC) Knowledge Database (KDB) 941225 D05 SAR¹ for LTE Devices (current version v02r05) "SAR EVALUATION CONSIDERATIONS FOR LTE DEVICES" sections 4.1, 5.1 and 5.2 or equivalent in the event the KDB is updated.

1.3.2. LTE Network Connectivity

Specification requirement:

- The system must be capable of wirelessly connecting to a device in LTE mode over the frequency range of the system.

¹[https://apps.fcc.gov/kdb/GetAttachment.html?id=UwAisBc6g1VZZa0FASxWew%3D%3D&desc=941225D05 SAR for LTE Devices v02r05&tracking_number=26930](https://apps.fcc.gov/kdb/GetAttachment.html?id=UwAisBc6g1VZZa0FASxWew%3D%3D&desc=941225D05%20SAR%20for%20LTE%20Devices%20v02r05&tracking_number=26930)

1.3.3. LTE Measurement

Specification requirement:

- The system must perform basic RF measurements such as but not limited to RF output power measurements with the system wirelessly connected to a device in LTE mode over the frequency range of the system.

1.4) Test Subscriber Identity Module (SIM) Card

1.4.1. Nano Size Test Subscriber Identity Module (SIM) Card

Specification requirement:

- A Nano size test SIM card which is designed to be inserted in a Device Under Test (DUT) to be used with the base station simulator for signalling communications in supported wireless technologies. The hardware must be an OEM product and can't be substituted.

1.5) Environmental Requirements

Specification requirement:

- The manufacturer's operating temperature range must be in the range of 10 degrees Celsius or lower to 35 degrees Celsius or higher.
- The maximum operating humidity must be equal to or higher than 70%.

1.6) Connection Requirements

Specification requirement:

- RF test port connector(s) must be N type female or SMA type female.
- The impedance of the RF test port connector(s) must be 50 ohms.

- The equipment must have a Voltage Standing Wave Ratio (VSWR) specification no greater than 3 over the entire frequency range of the system
- The AC power input connection must be 120Vac, 60 Hz
- The equipment must be equipped with an Ethernet (LAN) port and at least one USB port.

1.7) System Specifications

1.7.1. User Interface

Specification requirement:

- The system must include a user interface in the system. The user interface must be a colour visual screen display with either tactile user controls embedded in the system or a touch screen embedded in the system.

1.7.2. Data Storage

Specification requirement:

- There must be internal data storage with an external data storage option via USB.

1.8) Software Specifications

1.8.1. Software License

Specification requirement:

- The software provided with the system must not require a periodic software licensing fee.

1.9) General Specifications

1.9.1. Quality and Service

Specification requirement:

- The manufacturer of the 5G Base Station Simulator must have at least 10 years' experience manufacturing electronic test equipment.
- The 5G Base Station Simulator can be either a turnkey standalone instrument or a turnkey system comprised of several different pieces of equipment.
- The 5G Base Station Simulator must not be manufactured using components that are older than 5 years. A letter of commitment stating that replacement components must be available for approximately 5 years from the time of purchase is required to be submitted with the bid.
- 1 day of training on how to use the equipment must be provided for up to 10 people, in English, at the CEB within 4 weeks of delivery of the goods
- A 12 month warranty is required on items as identified in the SACC - General Conditions – Goods – 2010A 09 (2018-06-21) Warranty.
- The system must include contact information for product support in the form of a website, email address and telephone number. The support must be available for at least 2 years after purchase.

1.9.2. Calibration of Equipment

Specification requirement:

- All hardware components of the system must be delivered with a certificate of calibration and data demonstrating compliance to all the manufacturers' specifications. The calibration must be valid for at least 1 year after purchase.

1.9.3. Delivery and Brokerage

- The contract must be Delivered Duty Paid (DDP) to Innovation, Science and Economic Development Canada, Certification and

Engineering Bureau, located at 3701 Carling Ave. bldg.# 94.
Ottawa, Ontario, Canada K2H 8S2 (ph.# (613) 991-9311)

1.9.4. Safety Requirements

Specification requirement:

- The 5G Base Station Simulator system must carry the official mark or label of an agency that has been accredited to certify equipment to electrical safety standards in Canada.

2) Option to Purchase

2.1) 5G New Radio (NR) Frequency Range Extension System (FR2)

A 5G Base Station Simulator frequency range extension system is a system that works in conjunction with a separate 5G Base Station Simulator (the 5G Base Station Simulator is described in the preceding mandatory requirements). The frequency range extension emulates the communication characteristics of a cellular telephone base station for both 5G New Radio (NR) Standalone (SA) and Non-standalone (NSA) technologies at higher frequencies. The system must be capable of communicating in a "loopback", "network" or "signalling" condition that supports a stable communication link between the pre-existing base station simulator and wireless communications devices. The frequency range extension system can be comprised of separate instruments combined to meet the requirements, such as a control unit, frequency converters and antennas. The system must connect to or contain a component with a visual display and a user interface.

The options specification requirement is for hardware and software that will connect to the 5G Base Station Simulator described in the mandatory specifications. The combined 5G Base Station Simulator and frequency range extension system will then be capable of connecting with a device under test (DUT) at higher millimetre wave (mmW) frequencies, known as Frequency Range 2 (FR2). The combined system must also be capable of connecting with a DUT in 5G 3GPP Release 15 New Radio (NR) Standalone

(SA) and Non-standalone (NSA) basic communications. The combined system must also be capable of performing basic RF measurements in the frequencies and communications described above. Complex protocol testing is not required.

2.1.1. General Hardware Specifications

2.1.1.1 Frequency Range

Specification requirement:

- The frequency range extension must be from 24.250 GHz or less to 52.6 GHz or more.

2.1.2. 5G Requirements

2.1.2.1 5G New Radio (NR) Non-standalone (NSA) Network Connectivity

Specification requirement:

- The system must be capable of wirelessly connecting to a device in a 5G NR NSA mode as described in 3GPP Release 15 in Time Division Duplex (TDD) over the FR2 frequency bands specified in 3GPP Release 15.

2.1.2.2 5G New Radio (NR) Standalone (SA) Network Connectivity

Specification requirement:

- The system must be capable of wirelessly connecting to a device in a 5G NR SA mode as described in 3GPP Release 15 in Time Division Duplex (TDD) over the FR2 frequency bands specified in 3GPP Release 15.

2.1.2.3 5G New Radio (NR) Measurement

Specification requirement:

- The system must perform basic RF measurements such as but not limited to RF output power measurements with the system

wirelessly connected to a device in a 5G NR NSA or SA mode in TDD over the frequency range of the system.

2.1.3. Software Specifications

2.1.3.1 Software License

Specification requirement:

- The software provided with the system must not require a periodic software licensing fee.

2.1.4. General Specifications

2.1.4.1 Quote

Specification requirement:

- A detailed quote including all items necessary to meet the specification requirements for a 5G New Radio (NR) Frequency Range Extension System (FR2) valid until March 31st, 2022 must be included with the request.

2.1.4.2 Quality and Service

Specification requirement:

- The manufacturer of the 5G New Radio (NR) Frequency Range Extension System (FR2) must be the same manufacturer as the 5G Base Station Simulator described in the mandatory requirements of this document
- The 5G New Radio (NR) Frequency Range Extension System (FR2) can be comprised of several different pieces of equipment.
- The 5G New Radio (NR) Frequency Range Extension System (FR2) must not be manufactured using components that are older than 5 years. A letter of commitment stating that replacement

components must be available for approximately 5 years from the time of purchase is required to be submitted with the bid.

- 1 day training on how to use the equipment must be provided for up to 10 people , in English, at the CEB within 4 weeks of delivery of the goods
- A 12 month warranty is required on items as identified in the SACC - General Conditions – Goods – 2010A 09 (2018-06-21) Warranty.
- The 5G New Radio (NR) Frequency Range Extension System (FR2) must include contact information for product support in the form of a website, email address and telephone number. The support must be available for at least 2 years after purchase.

2.1.4.3 Calibration of Equipment

Specification requirement:

- All hardware components of the 5G New Radio (NR) Frequency Range Extension System (FR2) must be delivered with a certificate of calibration and data demonstrating compliance to all the manufacturers' specifications. The calibration must be valid for at least 1 year after purchase

Appendix A: Mandatory Requirement Compliance Matrix

Item	Title	Description	Proof of Compliance	COMPLIANT – YES or NO?
1.1) General Hardware Specifications				
1.1.1	Frequency Range	The frequency range must be from 450 MHz or less to 6 GHz or more.		
1.1.2 Generator Hardware Specifications				
1.1.2.1	Maximum RF Output Power	The maximum RF output power over the frequency range of the system must be greater than or equal to -10 dBm.		
1.1.2.2	Generator Level Accuracy	The generator level accuracy over the entire frequency range of the system must not exceed ± 2.5 dB.		
1.1.2.3	Generator Amplitude Resolution	The generator amplitude resolution over the entire frequency range of the system must be less than or equal to 0.1 dB.		
1.1.2.4	Generator Display Frequency Resolution	The generator frequency resolution over the entire frequency range of the system must be less than or equal to 100 kHz.		
1.1.3 Analyzer Hardware Specifications				
1.1.3.1	Maximum RF Input Power	The maximum RF output power over the frequency range of the system must be greater than or equal to 0 dBm.		
1.1.3.2	Analyzer Level Accuracy	The analyzer level accuracy over the entire frequency range of the system must not exceed ± 3 dB.		
1.1.3.3	Analyzer Amplitude Resolution	The analyzer amplitude resolution over the entire frequency range of the system must be less than or equal to 0.1 dB.		

Item	Title	Description	Proof of Compliance	COMPLIANT – YES or NO?
1.1.3.4	Display Analyzer Frequency Resolution	The frequency resolution over the entire frequency range of the system must be less than or equal to 100 kHz.		
1.2) 5G Requirements				
1.2.1	5G New Radio (NR) Non-standalone (NSA) Network Connectivity	The system must be capable of wirelessly connecting to a device in a 5G NR NSA mode as described in 3GPP Release 15 in both Time Division Duplex (TDD) and Frequency Division Duplex (FDD) technologies over the FR1 frequency bands specified in 3GPP Release 15.		
1.2.2	5G New Radio (NR) Standalone (SA) Network Connectivity	The system must be capable of wirelessly connecting to a device in a 5G NR SA mode as described in 3GPP Release 15 in both Time Division Duplex (TDD) and Frequency Division Duplex (FDD) technologies over the FR1 frequency bands specified in 3GPP Release 15.		
1.2.3	5G New Radio (NR) Measurement	The system must perform basic RF measurements such as but not limited to RF output power measurements with the system wirelessly connected to a device in a 5G NR NSA or SA mode in either TDD or FDD over the frequency range of the system.		
1.3) Long Term Evolution (LTE) Requirements				
1.3.1	Technology, Modulation and Resource Block (RB) Configuration	The LTE portion of the base station simulator system must be capable of providing all necessary configuration options to the end user for modulations which includes, as a minimum QPSK, 16QAM, 64-QAM and necessary 1, 50% and 100% Resource Block (RB) allocations. As a minimum, the following reference document must be used to determine the required settings: the most recent version of the Federal Communications Commission (FCC) Knowledge Database (KDB) 941225 D05 SAR for LTE Devices (current version v02r05) "SAR EVALUATION CONSIDERATIONS FOR LTE DEVICES" sections 4.1, 5.1 and 5.2 or equivalent in the event the KDB is updated.		
1.3.2	LTE Network Connectivity	The system must be capable of wirelessly connecting to a device in LTE mode over the frequency range of the system.		
1.3.3	LTE Measurement	The system must be capable of wirelessly connecting to a device in LTE mode over the frequency range of the system.		

Item	Title	Description	Proof of Compliance	COMPLIANT – YES or NO?
1.4) Test Subscriber Identity Module (SIM) Card				
1.4.1	Nano Size Test Subscriber Identity Module (SIM) Card	A Nano size test SIM card which is designed to be inserted in a Device Under Test (DUT) to be used with the base station simulator for signalling communications in supported wireless technologies. The hardware must be an OEM product and can't be substituted.		
1.5) Environmental Requirements				
1.5)	Environmental Requirements	<p>The manufacturer's operating temperature range must be in the range of 10 degrees Celsius or lower to 35 degrees Celsius or higher.</p> <p>The maximum operating humidity must be equal to or higher than 70%.</p>		
1.6) Connection Requirements				
1.6)	Connection Requirements	<p>RF test port connector(s) must be N type female or SMA type female.</p> <p>The impedance of the RF test port connector(s) must be 50 ohms.</p> <p>The equipment must have a Voltage Standing Wave Ratio (VSWR) specification no greater than 3 over the entire frequency range of the system</p> <p>The AC power input connection must be 120Vac, 60 Hz</p> <p>The equipment must be equipped with an Ethernet (LAN) port and at least one USB port.</p>		
1.7) System Specifications				
1.7.1	User Interface	The system must include a user interface in the system. The user interface must be a colour visual screen display with either tactile user controls embedded in the system or a touch screen embedded in the system.		
1.7.2	Data Storage	There must be internal data storage with an external data storage option via USB.		
1.8) Software Specifications				
1.8.1	Software License	The software provided with the system must not require a periodic software licensing fee.		
1.9) General Specifications				

Item	Title	Description	Proof of Compliance	COMPLIANT – YES or NO?
1.9.1	Quality and Service	<p>The manufacturer of the 5G Base Station Simulator must have at least 10 years' experience manufacturing electronic test equipment.</p> <p>The 5G Base Station Simulator can be either a turnkey standalone instrument or a turnkey system comprised of several different pieces of equipment.</p> <p>The 5G Base Station Simulator must not be manufactured using components that are older than 5 years. A letter of commitment stating that replacement components must be available for approximately 5 years from the time of purchase is required to be submitted with the bid.</p> <p>1 day of training on how to use the equipment must be provided for up to 10 people, in English, at the CEB within 4 weeks of delivery of the goods</p> <p>A 12 month warranty is required on items as identified in the SACC - General Conditions – Goods – 2010A 09 (2018-06-21) Warranty.</p> <p>The system must include contact information for product support in the form of a website, email address and telephone number. The support must be available for at least 2 years after purchase.</p>		
1.9.2	Calibration of Equipment	All hardware components of the system must be delivered with a certificate of calibration and data demonstrating compliance to all the manufacturers' specifications. The calibration must be valid for at least 1 year after purchase.		
1.9.3	Delivery and Brokerage	The contract must be Delivered Duty Paid (DDP) to Innovation, Science and Economic Development Canada, Certification and Engineering Bureau, located at 3701 Carling Ave. bldg.# 94. Ottawa, Ontario, Canada K2H 8S2 (ph.# (613) 991-9311)		
1.9.4	Safety Requirements	The 5G Base Station Simulator system must carry the official mark or label of an agency that has been accredited to certify equipment to electrical safety standards in Canada.		

Annex B: Option to Purchase [5G New Radio (NR) Frequency Range Extension System (FR2) Compliance Matrix]

Item	Title	Description	Proof of Compliance	COMPLIANT – YES or NO?
2.1.1 General Hardware Specifications				
2.1.1.1	Frequency Range	The frequency range extension must be from 24.250 GHz or less to 52.6 GHz or more.		
2.1.2 5G Requirements				
2.1.2.1	5G New Radio (NR) Non-standalone (NSA) Network Connectivity	The system must be capable of wirelessly connecting to a device in a 5G NR NSA mode as described in 3GPP Release 15 in Time Division Duplex (TDD) over the FR2 frequency bands specified in 3GPP Release 15.		
2.1.2.2	5G New Radio (NR) Standalone (SA) Network Connectivity	The system must be capable of wirelessly connecting to a device in a 5G NR SA mode as described in 3GPP Release 15 in Time Division Duplex (TDD) over the FR2 frequency bands specified in 3GPP Release 15.		
2.1.2.3	5G New Radio (NR) Measurement	The system must perform basic RF measurements such as but not limited to RF output power measurements with the system wirelessly connected to a device in a 5G NR NSA or SA mode in TDD over the frequency range of the system.		
2.1.3 Software Specifications				
2.1.3.1	Software License	The software provided with the system must not require a periodic software licensing fee.		
2.1.4 General Specifications				
2.1.4.1	Quote	A detailed quote including all items necessary to meet the specification requirements for a 5G New Radio (NR) Frequency Range Extension System (FR2) valid until March 31st, 2022 must be included with the request.		

Item	Title	Description	Proof of Compliance	COMPLIANT – YES or NO?
2.1.4.2	Quality and Service	<ul style="list-style-type: none"> The manufacturer of the 5G New Radio (NR) Frequency Range Extension System (FR2) must be the same manufacturer as the 5G Base Station Simulator described in the mandatory requirements of this document The 5G New Radio (NR) Frequency Range Extension System (FR2) can be comprised of several different pieces of equipment. The 5G New Radio (NR) Frequency Range Extension System (FR2) must not be manufactured using components that are older than 5 years. A letter of commitment stating that replacement components must be available for approximately 5 years from the time of purchase is required to be submitted with the bid. 1 day training on how to use the equipment must be provided for up to 10 people , in English, at the CEB within 4 weeks of delivery of the goods A 12 month warranty is required on items as identified in the SACC - General Conditions – Goods – 2010A 09 (2018-06-21) Warranty. The 5G New Radio (NR) Frequency Range Extension System (FR2) must include contact information for product support in the form of a website, email address and telephone number. The support must be available for at least 2 years after purchase. 		
2.1.4.3	Calibration of Equipment	All hardware components of the 5G New Radio (NR) Frequency Range Extension System (FR2) must be delivered with a certificate of calibration and data demonstrating compliance to all the manufacturers' specifications. The calibration must be valid for at least 1 year after purchase		

ANNEX B Basis of Payment-U4030-209032/A						
Item #	Name	Quantity	Delivery Destination	Requested Delivery Date	Offered Unit Price (\$CAD)	Delivery Delay (Weeks or Days)
001	5G Base Station Simulator - Must be supplied in accordance with the technical specifications of Annex A - Statement of Requirements (Annex A - Section 1)	One (1)	Ottawa, ON	On or before March 23, 2020	\$ _____	_____
Optional 001	5G New Radio (NR) Frequency Range Extension System (FR2) - Must be supplied in accordance with the technical specifications of Annex A - Statement of Requirements (Annex A - Section 2)	One (1)	Ottawa, ON	Upon request (From award date to March 31, 2022)	\$ _____	_____
TOTAL EVALUATED BID PRICE: Item 001 + Optional Item 001						
TOTAL EVALUATED BID PRICE (+13% tax): Item 001 + Optional Item 001					\$ _____	_____

**** Please note: Bidders must bid on both firm and optional portions of this requirement**