

Advance Contract Award Notice

Communications Research Centre

Innovation, Science and Economic Development Canada

PROJECT TITLE: Crowdsourced RF Spectrum Data

The Communications Research Centre (CRC), a branch of the Spectrum and Telecommunications Sector (STS), Department of Innovation, Science and Economic Development Canada (ISED), has a requirement to obtain measurements of mobile phone Radio Frequency (RF) spectrum performance data from across Canada. The purpose of this Advance Contract Award Notice (ACAN) is to signal the government's intention to award a contract for these services to the pre-selected supplier:

Tutela Technologies Ltd.
838 Fort Street, Suite 320
Victoria, British Columbia, V8W 1H8

Before awarding a contract, however, the government provides other suppliers with the opportunity to demonstrate that they are capable of satisfying the requirements set out in this Notice, by submitting a 'Statement of Capabilities' during the fifteen calendar day posting period.

If other potential suppliers submit Statements of Capabilities during the fifteen calendar day posting period that meet the requirements set out in the ACAN, the government will proceed to a full tendering process on either the government's electronic tendering service (buyandsell.gc.ca) or through traditional means, in order to award the contract

If no other supplier submits, on or before the closing date, a statement of capabilities meeting the requirements set out in the ACAN, a contract will be awarded to the pre-selected supplier, as referenced above.

BACKGROUND:

Spectrum Environment Awareness (SEA) is a CRC research program focused on the development and demonstration of techniques for monitoring how wireless spectrum is used in Canada. Wireless spectrum is a limited resource, the demand for which is rapidly increasing. The goal of this research program is to ensure that this limited resource is used effectively and efficiently.

With the widespread adoption of mobile applications and services, the demand for commercial mobile spectrum has been continuously growing. In the absence of spectrum usage or user performance data, however, it is difficult for the regulators to quantify the spectrum needs of mobile operators, assess current and future licensing strategies, or tailor new bands for broadband mobile service. To address this knowledge gap, Communications Research Centre Canada (CRC) is researching novel data-driven spectrum management concepts in support of the government's regulatory mandate by leveraging crowdsourced mobile user performance data.

OBJECTIVE:

CRC is seeking to establish a contract by which the SEA research program can increase the size and scope of its RF spectrum monitoring capabilities. As such, the CRC would like to augment the amount and geographical coverage of RF Spectrum data collected via crowdsourcing smartphone applications by buying this data from a commercial entity.

SCOPE OF WORK:

The main requirements for the crowdsourced smartphone radio spectrum data covered under this contract can be summarized as:

- Current and historical Canadian RF spectrum usage, availability, and performance data across common wireless protocols such as 2G, 3G, 4G LTE, and Wi-Fi.

TIMING AND DELIVERABLES:

The contractor must provide twelve months of RF spectrum usage, availability, and performance data (electronic format files) from March 1, 2019 to Feb 29, 2020, collected by crowdsourced smartphones from across Canada, meeting the following requirements:

- a. The contractor must provide RF spectrum data from at least 150,000 unique reporting RF spectrum data-collecting smartphones per month;
- b. The contractor must provide at least 200 million "Category A" samples per month of RF spectrum data from the RF spectrum data-collecting smartphones. Of these samples, at least 50 million must have valid RSRP and RSRQ field values;
- c. The contractor must provide at least 1 million "Category B" samples per month of RF spectrum data from the RF spectrum data-collecting smartphones. Of these samples, at least 1 million must have valid Download Speed and Upload Speed values. These must be separate from the "Category A" samples mentioned above; and
- d. The data provided by the contractor via the RF spectrum data-collecting smartphones must include, at a minimum, the data included in the mandatory data fields listed in Annex A.

"Category A" samples must contain, at a minimum, all data fields contained in tables 1.1, 1.2, 1.3 and 1.4 in Annex A. It is understood that each individual field may not be filled with non-null data for every row of data, based on the type of record recorded.

"Category B" samples must contain, at a minimum, all data fields contained in tables 1.1, 1.2, 1.3, 1.4 and 1.5 in Annex A. It is understood that each individual field may not be filled with non-null data for every row of data, based on the type of record recorded.

Option year from March 1, 2020 to February 28, 2021:

The Contractor grants to Canada the irrevocable 1 year option period to extend the service exercisable at any time during the Contract Period. The prices will be those set out in the Basis of Payment. The option(s) may only be exercised by the Contracting Authority by notice in writing and will be evidenced, for administrative purposes only, by a contract amendment.

MINIMUM ESSENTIAL QUALIFICATIONS:

To fulfill the requirements of the contract, the person or firm must meet the following minimum requirements:

1. The vendor must have at least one (1) year of experience in collecting RF spectrum data in Canada using its smartphone software code;
2. The interested supplier must provide current and historical Canadian RF usage, availability, and performance data for 2G, 3G, 4G LTE, and Wi-Fi meeting the requirements below:
 - a. The interested supplier must have had RF spectrum data-collecting software installed and running on at least 150,000 reporting smartphones across Canada in each of the previous three months;
 - b. The interested supplier must provide at least 200 million "Category A" samples per month of RF spectrum data from the RF spectrum data-collecting smartphones. Of these samples, at least 50 million must have valid RSRP and RSRQ field values.

- c. The interested supplier must provide at least 1 million “Category B” samples per month of RF spectrum data from the RF spectrum data-collecting smartphones. Of these samples, at least 1 million must have valid Download Speed and Upload Speed values. These must be separate from the “Category A” samples mentioned above;
 - d. The data collected by the RF spectrum data-collecting smartphones must include, at a minimum, the mandatory data fields listed in Annex A.
3. The vendor must allow CRC to submit open literature publication of research results based on analysis of the RF spectrum data. The vendor will be given a minimum of two weeks’ notice prior to the initial submission of each publication and can choose whether or not to include their name within the publication. Such publications will only use abstracts and derivatives of vendor’s data for the purpose of demonstrating RF spectrum research findings and will not include the raw data or opinions about the vendor or vendor’s data.
4. The interested supplier must be willing to allow CRC to share the acquired data with third parties who are not competitors of the vendor and who are collaborating with CRC on R&D projects under a legal agreement, solely for the purpose of completing the work under the agreement. CRC will seek approval from the vendor prior to sharing the data for this purpose, and such approval, if given, shall be given in writing within seven days of a written request from CRC and shall not be unreasonably withheld. As part of their approval process, the vendor is free to request a non-disclosure agreement with the third-party collaborator. Collaborators with whom CRC shares the data will not be permitted by CRC to access or use the data outside the scope of the collaborative project.
5. The interested supplier must allow CRC to share the acquired data within the CRC’s parent department, Innovation, Science and Economic Development Canada only if the CRC deems that granting access to the data is required for completing a collaborative project, and only for the duration of the project. For clarity, such projects shall be limited to proof of concept and platform development activities and shall not include any day-to-day production use of vendor data.

GOVERNMENT OF CANADA REGULATIONS EXCEPTION:

The Treasury Board’s Government Contract Regulations, Part 10.2.1 Section 6 states there are four exceptions that permit the contracting authority to set aside the requirement to solicit bids. The exception for related to this ACAN includes:

- d. “only one supplier person or firm is capable of performing the contract.”

JUSTIFICATION FOR THE PRE-SELECTED SUPPLIER:

CRC requires crowdsourced data to expand CRC’s research within the Spectrum Environment Awareness (SEA) and Making Better Use of Spectrum (MBUS) Grand Challenges and to support other STS initiatives.

- With 175,000 reporting devices in Canada, Tutela has more reporting devices and raw data measurements than any other crowdsourced data provider in Canada
- Tutela’s dataset satisfies CRC’s crowdsourced data requirements.
- CRC’s requirement is for raw data samples; Tutela’s business model is to provide this raw data. Competitors with similar penetration in Canada sell preprocessed data.

Applicability of the trade agreement(s) to the procurement

- Canada Free Trade Agreement (CFTA)
- Canada - Chile Free Trade Agreement (CCFTA)
- Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP)
- Canada - Colombia Free Trade Agreement
- Canada - Comprehensive Economic and Trade Agreement (CETA)
- Canada - Panama Free Trade Agreement

- Canada - Peru Free Trade Agreement
- Canada - Korea Free Trade Agreement
- Canada - Honduras Free Trade Agreement
- North American Free Trade Agreement (NAFTA)
- Canada – Ukraine Free Trade Agreement
- World Trade Organization (WTO-AGP).

Government Contracts Regulations Exception(s)

Government Contract Regulations applies as only one person is capable of performing the work (Supply Manual Chapter 3 - 3.15).

Limited tendering procedures in accordance with AIT, NAFTA, WTO-AGP and the Supply Manual (SM), Chapter 3, Annex 3.2 where:

- for works of art, or for reasons connected with the protection of patents, copyrights or other exclusive rights, or proprietary information or where there is an absence of competition for technical reasons, the goods or services can be supplied only by a particular supplier and no reasonable alternative or substitute exists; (CAP Code 71)

Ownership of Intellectual Property

4006 07 (2008-05-12) License to Intellectual Property Rights to Canada's Information

1. Any information supplied by Canada to the Contractor for the performance of the Work remains the property of Canada. The Contractor must use Canada's Information only to perform the Contract.
2. If the Contractor wants to use any information owned by Canada for the commercial exploitation or further development of the Foreground Information, the Contractor must obtain a license from the department or agency for which the Contract is performed. In its request for a license to that department or agency, the Contractor must explain why the license is required and how the Contractor intends to use the information. If the department or agency agrees to grant a license, conditions will be negotiated between the Contractor and that department or agency and may include the payment of a compensation to Canada.

Any information, including vendor's data, delivered by the vendor in performance of obligations herein remain the sole property of vendor and no title of ownership is transferred or granted to Canada with respect to any of vendor's intellectual property.

For clarity, CRC will retain ownership of any Foreground Intellectual Property arising from CRC's analyses of vendor's data.

Period of the proposed Contract

The proposed contract runs from the date of award of the contract until March 1, 2020, plus one (1) one-year irrevocable option period allowing Canada to extend the term of the contract from March 1, 2020 until March 1, 2021.

Cost estimate of the proposed Contract

The estimated value of the contract, including option(s), is \$435,000 including GST/HST.

Proposed Contractor

Tutela Technologies Ltd.
838 Fort Street, Suite 320
Victoria, British Columbia, V8W 1H8

You are hereby notified that the government intends to solicit a bid and negotiate with one firm only as identified above.

Suppliers' right to submit a statement of capabilities

Suppliers who consider themselves fully qualified and available to provide the goods, services or construction services described in the ACAN may submit a statement of capabilities in writing to the contact person identified in this notice on or before the closing date of this notice. The statement of capabilities must clearly demonstrate how the supplier meets the advertised requirements.

Responses received on or before the closing date will be considered solely for the purpose of deciding whether or not to conduct a competitive procurement. Information provided will be used by the Crown for technical evaluation purposes only and will not be construed as a proposal. The submitted written response must provide sufficient evidence (e.g. specifications, technical data, drawings or any other proof) that clearly demonstrates that the proposed product is capable of fulfilling this requirement. Suppliers that have submitted a response will be notified in writing of CRC's decision whether to continue with the aforementioned procurement or to compete the requirement.

Inquiries and statements of capabilities are to be directed to:

Anne Nino
Manager Procurement and Contracting (CRC)
Contracts & Material Management, Corporate Management Sector
Innovation, Science and Economic Development Canada | Government of Canada
3701 Carling Avenue | Building 2D | Room 138 | Ottawa, ON K2H 8S2
Anne.Nino@canada.ca | Tel: 613-998-1922

Gestionnaire Service des approvisionnements et des contrats (CRC)
Marchés et acquisition, Secteur de la gestion intégrée
Innovation, Sciences et Développement économique Canada | Gouvernement du Canada
3701 Carling Avenue | Immeuble 2D | pièce 138 | Ottawa, ON K2H 8S2
Anne.Nino@canada.ca | Tél: 613-998-1922

All responses or inquiries are to be submitted to the Procurement officer identified above. The PWGSC file number, the procurement officer's name and the closing date of the ACAN must appear on the outside of the envelope in block letters or, in the case of a facsimile transmission, on the covering page.

The Crown retains the right to negotiate with suppliers on any procurement. Documents may be submitted in either official language of Canada.

CLOSING DATE AND TIME FOR WRITTEN SUPPLIER RESPONSES CHALLENGING THIS REQUIREMENT IS September 9, 2019, 2:00 PM EST.

CRITERIA FOR ASSESSMENT OF STATEMENT OF CAPABILITIES:

Any interested supplier must demonstrate by way of a statement of capabilities that it meets the following requirements. Proof must include specific evidence that clearly shows that the criteria are met.

1. The interested supplier must prove that it has at least one (1) year of experience in collecting Canadian RF spectrum data using Android and iOS smartphone application(s);
2. The interested supplier must prove that they can provide current and historical Canadian RF usage, availability, and performance data for 2G, 3G, 4G LTE, and Wi-Fi meeting the requirements below:

- a. The interested supplier must prove that they have had RF spectrum data-collecting software installed and running on at least 150,000 reporting smartphones across Canada in each of the previous three months;
 - b. The interested supplier must prove that they can provide at least 200 million “Category A” samples per month of RF spectrum data from the RF spectrum data-collecting smartphones. Of these samples, at least 50 million must have valid RSRP and RSRQ field values.
 - c. The interested supplier must prove that they can provide at least 1 million “Category B” samples per month of RF spectrum data from the RF spectrum data-collecting smartphones. Of these samples, at least 1 million must have valid Download Speed and Upload Speed values. These must be separate from the “Category A” samples mentioned above;
 - d. The interested supplier must prove that the data collected by the RF spectrum data-collecting smartphones includes, at a minimum, the mandatory data fields listed in Annex A. A sample report must be provided to prove this.
3. The interested supplier must confirm that CRC can submit open literature publication of research results based on analysis of the RF spectrum data. The vendor will be given a minimum of two weeks’ notice prior to the initial submission of each publication and can choose whether or not to include their name within the publication. Such publications will only use abstracts and derivatives of vendor’s data for the purpose of demonstrating RF spectrum research findings and will not include the raw data or opinions about the vendor or vendor’s data.
 4. The interested supplier must confirm that CRC can, with approval from vendor, share the acquired data with third parties who are not competitors of the vendor and who are collaborating with CRC on R&D projects under a legal agreement, solely for the purpose of completing the work under the agreement. CRC will seek approval from the vendor prior to sharing the data for this purpose, and such approval, if given, shall be given in writing within seven days of a written request from CRC and shall not be unreasonably withheld. As part of their approval process, the vendor is free to request a non-disclosure agreement with the third-party collaborator. Collaborators with whom CRC shares the data will not be permitted by CRC to access or use the data outside the scope of the collaborative project.
 5. The interested supplier must confirm that CRC can share the data within the CRC’s parent department, Innovation, Science and Economic Development Canada only if the CRC deems that granting access to the data is required for completing a collaborative project, and only for the duration of the project. For clarity, such projects shall be limited to proof of concept and platform development activities and shall not include any day-to-day production use of vendor data.

Potential suppliers who consider themselves fully qualified and available to meet the specified requirements may submit a statement of capabilities in writing to the Contracting Authority identified in this Notice on or before the closing date of this Notice. The statement of capabilities must clearly demonstrate how the supplier meets the advertised requirements.

If a potential supplier submits a statement of capabilities during the posting period that meets the requirements set out in this ACAN, the government will proceed to a full tendering process on either the government’s electronic tendering system or through traditional means in order to award the contract. If no other supplier submits on or before the closing date a statement of capabilities meeting the requirements set out in this ACAN, a contract will be awarded to the pre-selected supplier.

Annex A – DATA PARAMETER REQUIREMENTS

1. Android & iOS Mandatory Data Fields

1.1 Device Information

Name	Description	Android	iOS
UID	Unique ID	Required	Required
Manufacturer	Device manufacturer	Required	Required
Manufacturer Market Name	Common (user-friendly) name of device manufacturer	If available	If available
Model	Device model	Required	Required
Model Market Name	Common (user-friendly) name of device model	If available	If available
Operating System	Name and version of the device operating system	Required	Required
Operating System Market Name	Common (user-friendly) name and version of the device operating system	If available	If available
Language	Preferred device language	Required	Required
Locale	Device locale country code (number, time, and currency formatting)	Required	Required
Screen Width	Device screen width in pixels	Required	Required
Screen Height	Device screen height in pixels	Required	Required
Total Storage	Total available storage of the device	Required	Required
Used Storage	Used storage of the device	Required	Required
Free Storage	Free storage of the device	Required	Required
Total Memory	Total available memory of the device	Required	Required
Used Memory	Used memory of the device	Required	Required
Free Memory	Free memory of the device	Required	Required
CPU Utilization	Current CPU utilization of the device	Required	Required
Battery Level	Battery level of the device	Required	Required

Battery State	State of the device battery (e.g. charging, unplugged)	Required	Required
System Uptime	Amount of time elapsed since the last boot of the device	Required	Required
Speed	Current speed of the device	Required	Required
Bearing	Current bearing of the device	Required	Required
Mobile Country Code	MCC of the current device SIM mobile base station	Required	Required
Mobile Network Code	MNC of the current device SIM mobile base station	Required	Required
Service Provider	Current device SIM service provider	Required	Required
Service Provider Market Name	Common (user-friendly) name of the current device SIM service provider	If available	If available
Code Version	Version of the custom code used to capture these data fields	Required	Required

1.2 Connection Information

Name	Description	Android	iOS
Start Time	UTC timestamp of the connection start time	Required	Required
End Time	UTC timestamp of the connection end time	Required	Required
Time Zone	Time zone of the device during connection	Required	Required
Connection Type	Type of current data connection (e.g. Wi-Fi, Commercial Mobile)	Required	Required
Mobile Technology	Commercial mobile technology of the current connection (e.g. GSM, CDMA)	Required	Required
Mobile Generation	Commercial mobile generation of the current connection (e.g. 2G, 3G, 4G)	Required	Required
Mobile Country Code	MCC of the connected mobile base station	Required	Required
Mobile Network	MNC of the connected mobile base	Required	Required

Code	station		
Location Area Code	LAC of the connected mobile base station	Required	If available
Cell ID	Cell ID of the connected mobile base station	Required	If available
Service Provider	Connected mobile service provider	Required	Required
Service Provider Market Name	Common (user-friendly) name of the connected mobile service provider	If available	If available
Mobile Channel	Connected mobile EARFCN (or equivalent, depending on technology)	Required	If available
Base Station Identity Code	BSIC of the connected mobile base station (GSM)	Required	If available
Physical Cell ID	Physical cell ID of the connected mobile base station (LTE)	Required	If available
BSSID	BSSID of the connected Wi-Fi access point	Required	Required
SSID	SSID of the connected Wi-Fi access point	Required	Required
Wi-Fi Frequency	Wi-Fi frequency of the connected Wi-Fi access point	Required	If available

1.3 Location Information

Name	Description	Android	iOS
Latitude	Latitude of the device	Required	Required
Longitude	Longitude of the device	Required	Required
Altitude	Altitude of the device	Required	Required
Horizontal Accuracy	Accuracy of the device latitude and longitude	Required	Required
Vertical Accuracy	Accuracy of the device altitude	Required	Required
Country	Country of the device based on location	Required	Required
Region (State/Province)	Region of the device based on location (e.g. Ontario)	Required	Required
City	City of the device based on location	Required	Required

1.4 LTE Signal Information

Name	Description	Android	iOS
RSRP	RSRP of the LTE connection of the device	Required	If available
RSRQ	RSRQ of the LTE connection of the device	Required	If available
RSSNR	RSSNR of the LTE connection of the device	Required	If available
Channel Quality Indicator	CQI of the LTE connection of the device	Required	If available
Timing Advance	TA of the LTE connection of the device	Required	If available

1.5 Active Test Information

Name	Description	Android	iOS
Timestamp	UTC timestamp of the measurement time	Required	Required
Upload Speed	Measured upload speed of the current wireless connection	Required	Required
Upload Size	Size of the file used in the upload test	Required	Required
Upload Server	Hostname and IP of the server used in the upload test	Required	Required
Download Speed	Measured download speed of the current wireless connection	Required	Required
Download Size	Size of the file used in the download test	Required	Required
Download Server	Hostname and IP of the server used in the download test	Required	Required
Latency	Measured latency of the current wireless connection	Required	Required
Jitter	Measured jitter of the current wireless connection	Required	Required
Packet Loss	Measured packet loss of the current wireless connection	Required	Required

Test Server	Hostname and IP of the server used in the test for latency, jitter, and packet loss	Required	Required
Link Speed	Wi-Fi link speed of the connected Wi-Fi access point (theoretical max).	Required	If available
Signal Strength	Wireless signal strength of the current wireless connection in dBm	Required	If available

2. Samples and Categories

A “sample” is a row of collected RF spectrum data that contains the data fields listed in section 1 of this annex. A sample can be one of two categories: Category A or Category B.

A “Category A” sample must contain all of the data fields listed in sections 1.1, 1.2, 1.3, and 1.4 of this annex.

A “Category B” sample must contain all of the data fields listed in sections 1.1, 1.2, 1.3, 1.4, and 1.5 of this annex.

3. Additional Information

All of the data fields listed in section 1 of this appendix must meet the following requirements:

- a) the data field must be collected to the best of the contractor’s ability, barring any cases where the field is clearly not applicable, and
- b) the data field must match the corresponding description.

“To the best of the contractor’s ability” means that the contractor has taken proper measures to ensure the accuracy and validity of the data within Android / iOS limitations.

“Cases where the field is clearly not applicable” are samples in which the type of connection is incompatible with the data field (e.g. an LTE connection does not have a corresponding Wi-Fi frequency).

A “required” data field must be provided to CRC as a part of the scope of work.

An “if available” data field can be provided to CRC as a part of the scope of work.

Additional relevant data fields can be provided to CRC as a part of the scope of work.