



## **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 for a contract 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

838 Fort Street, Suite 320  
Victoria, British Columbia, V8W 1H8

211 Congress Street, 6th Floor  
Boston, Massachusetts, USA, 02110

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](http://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:**

Wireless spectrum is a limited resource, the demand for which is rapidly increasing. One of CRC's goals 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, particularly in remote and rural areas. To address this knowledge gap, Communications Research Centre Canada (CRC) is expanding its use of data-driven spectrum management concepts in support of the government's regulatory mandate by leveraging crowdsourced mobile user performance data.

Furthermore, additional Canadian crowdsourced mobile spectrum data would allow CRC to expand the scope and scale of existing research into areas such as broadband deployment in remote and rural areas; assessment of service provider license compliance; and analysis of Quality-of-Service offered to Canadians by geography, service provider, and spectrum band. Analysis of these areas would in turn contribute towards providing informed guidance on spectrum management regulation.

The addition of US data allows for expansion of research into forecasting spectrum demand using actual spectrum deployments in various US markets; and into the analysis of new mobile technologies (such as 5G mobile networks) deployed in the US prior to their deployment in Canada.

## **OBJECTIVE:**

CRC is seeking to establish a contract to increase the size and scope of its ongoing RF spectrum research. 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, 5G and Wi-Fi.
- Current and historical US RF spectrum usage, availability, and performance data across common wireless protocols such as 2G, 3G, 4G LTE, 5G, and Wi-Fi.

## **TIMING AND DELIVERABLES:**

Contract award to February 28, 2021. The contractor must provide one year of historical RF spectrum usage, availability, and performance data (electronic format files) from March 1, 2020 to February 28, 2021, collected by crowdsourced smartphones from across the US.

Option year one (1), should CRC choose to procure, the contractor must provide one year of RF spectrum usage, availability, and performance data (electronic format files) from March 1, 2021 to February 28, 2022, collected by crowdsourced smartphones across Canada. As a further option, should CRC choose to procure, the contractor must provide one year of RF spectrum usage, availability, and performance data (electronic format files) from March 1, 2021 to February 28, 2022, collected by crowdsourced smartphones across the US.

Option year two (2), should CRC choose to procure, the contractor must provide one year of RF spectrum usage, availability, and performance data (electronic format files) from March 1, 2022 to February 28, 2023, collected by crowdsourced smartphones across Canada. As a further option, should CRC choose to procure, the contractor must provide one year of RF spectrum usage, availability, and performance data (electronic format files) from March 1, 2022 to February 28, 2023, collected by crowdsourced smartphones across the US.

## **MINIMUM ESSENTIAL QUALIFICATIONS:**

To fulfill the requirements of the contract, the person or firm must meet the following average monthly requirements (averaged over the past 12 months) for the crowdsourced Canadian spectrum data:

- a. The contractor must provide RF spectrum data from at least 100,000 unique reporting RF spectrum data-collecting smartphones per month;
- b. The contractor must provide at least 30 million "Category A" samples per month of RF spectrum data from the RF spectrum data-collecting smartphones. Of these samples, at least 10 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. 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, which must be proven by a sample report.

To fulfill the requirements of the contract, the person or firm must meet the following average monthly requirements (averaged over the past 12 months) for the crowdsourced US spectrum data:

- a. The contractor must provide RF spectrum data from at least 1 million unique reporting RF spectrum data-collecting smartphones per month;
- b. The contractor must provide at least 5 billion “Category A” samples per month of RF spectrum data from the RF spectrum data-collecting smartphones. Of these samples, at least 1 billion must have valid RSRP and RSRQ field values;
- c. The contractor must provide at least 15 million “Category B” samples per month of RF spectrum data from the RF spectrum data-collecting smartphones. 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, which must be proven by a sample report.

“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.

“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.

#### **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 has conducted an extensive search of possible suppliers of this type of data. There is a very limited supplier market and the pre-identified supplier meets all of the minimum essential requirements described in this ACAN.

#### **Applicability of the trade agreement(s) to the procurement**

This requirement is subject to:

The following Trade Agreements apply to this procurements:

- Canadian Free Trade Agreement (CFTA)
- Canada – Chile Free Trade Agreement (CCFTA)
- Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP)
- Canada – Columbia Free Trade Agreement
- Canada - European Union 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
- Canada – Ukraine Free Trade Agreement
- United States – Mexico – Canada Agreement (USMCA)
- 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 Trade Agreements that apply to this procurement 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**

Canada intends to retain ownership of any Foreground Intellectual Property arising out of the proposed contract on the basis that the main purpose of the contract is to develop algorithms.

Canada reserves the right to share the data procured under the contract with other legal entities to further its research. The data will be shared for the sole purpose of executing work under a legal agreement that prevents the legal entity from using the data for any other purpose.

### **Period of the proposed Contract**

The proposed contract is from the date of award of the contract to February 28, 2021 plus two (1) one-year irrevocable option periods allowing Canada to extend the term of the contract.

### **Cost estimate of the proposed Contract**

The estimated value of the contract, including two (1) one-year irrevocable option periods, is estimated \$1,044,120.00 Including applicable taxes.

### **Proposed Contractor**

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

211 Congress Street, 6th Floor  
Boston, Massachusetts, USA, 02110

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 Unit (CRC)

Contracts & Material Management, Corporate Management Sector

Innovation, Science and Economic Development Canada | Government of Canada

[Anne.Nino@ised-isde.gc.ca](mailto:Anne.Nino@ised-isde.gc.ca)

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 by email [ic.crcbidreceiving-receptiondesoffrescrc.ic@canada.ca](mailto:ic.crcbidreceiving-receptiondesoffrescrc.ic@canada.ca) addressed to the Procurement officer identified above. The PWGSC file number and the closing date of the ACAN must appear in the email.

**Any responses submitted to any e-mail address other than that stated herein will not be considered. The CRC will not assume responsibility for misdirected emails.**

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 JANUARY 18, 2021, 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 average monthly requirements (averaged over the past 12 months). Proof must include specific evidence that clearly shows that the criteria are met. For the Canadian spectrum data:

- a. The contractor must provide RF spectrum data from at least 100,000 unique reporting RF spectrum data-collecting smartphones on average per month;
- b. The contractor must provide at least 30 million "Category A" samples per month of RF spectrum data from the RF spectrum data-collecting smartphones. Of these samples, at least 10 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. 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, which must be proven by a sample report.

For the US spectrum data:

- a. The contractor must provide RF spectrum data from at least 1 million unique reporting RF spectrum data-collecting smartphones per month;
- b. The contractor must provide at least 5 billion "Category A" samples per month of RF spectrum data from the RF spectrum data-collecting smartphones. Of these samples, at least 1 billion must have valid RSRP and RSRQ field values;
- c. The contractor must provide at least 15 million "Category B" samples per month of RF spectrum data from the RF spectrum data-collecting smartphones. 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, which must be proven by a sample report.

“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.

“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.

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 Code	MNC of the connected mobile base station	Required	Required
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 Speed Test Information

<b>Name</b>	<b>Description</b>	<b>Android</b>	<b>iOS</b>
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