

## ENCQOR 5G SME Technology Development Challenge

### Title: **Android Application for 5G Surveys**

<b>Challenge Launch Date</b>	July 3, 2019
<b>Challenge Deadline</b>	July 31, 2019
<b>Challenge Statement</b>	Development of a methodology to extract critical 5G RF parameters from a User Equipment 3GPP radio to assist in mapping critical network signal levels, quality, and performance on a deployment site; pre and post network roll-out. The pre-deployment data will be used to fine-tune simulation models to get an accurate estimation of post-deployment network performance.
<b>Project Partner</b>	<ul style="list-style-type: none"><li>Ericsson Canada Inc.</li></ul>
<b>Timeline</b>	<ul style="list-style-type: none"><li>6 months</li></ul>
<b>Available funding</b>	<ul style="list-style-type: none"><li>Up to \$300,000</li></ul>
<b>Applicant Type</b>	<ul style="list-style-type: none"><li>Ontario based SME Scale company</li></ul>
<b>Location</b>	<ul style="list-style-type: none"><li>Work can be done remotely, but demonstration of milestones to occur at Ericsson Ottawa</li></ul>
<b>Project Details</b>	<ul style="list-style-type: none"><li>With the advent of 5G networks, optimum network planning especially for indoor environment will be paramount to achieve the benefits of this new technology and offer the end user the best experience in terms of coverage, throughput, and latency.</li><li>The project will research and implement a methodology to extract critical RF parameters (RSRP, SINR, rank, etc.) from the 3GPP radio of a UE (mobile handset, tablet) and have it available to be utilized by an existing web application product <a href="#">Ericsson Indoor Planner</a> (EIP) to optimize the simulation models and calculate the 5G network topology, node placement, and performance predictions.</li></ul>
<b>Project Goals/ Outcomes</b>	The expectation for this project is that the selected SME will develop an Android Application to collect data from UE devices and import RF data for use in "Ericsson Indoor Planner". The application developed by the SME should have the following capabilities:

	<ul style="list-style-type: none"> <li>• <b>Laptop Scenario:</b> The Android application should be developed to collect the radio parameters and pass them to the EIP web application running on a chrome browser on a Laptop. The UE with the Android application can be connected to the laptop via USB or Bluetooth.</li> <li>• The USB or Bluetooth interface will be used to communicate between the Android application on the UE and the EIP web application on a laptop to exchange RF and configuration data.</li> <li>• <b>Tablet Scenario:</b> The EIP web application can also run on a chrome browser on an Android tablet with a 3GPP radio. In this case, the RF data exchange method between the Android application and EIP web application will need to be defined.</li> <li>• The Android application should be able to configure (radio band, etc.) and extract RF data from UEs with Qualcomm (e.g. Snapdragon) and also Samsung (e.g. Exynos) based radio chipsets.</li> <li>• The Android application should support continuous transfer of RF data to the EIP Web application with a user defined update rate (e.g. once every second, etc.)</li> <li>• To cut down on the amount of RF data transfer between the application and the EIP web application, the Android application should have user defined RF parameter filters.</li> <li>• The Android application should also support discrete event driven transfer of RF data to the EIP web application, e.g. only when the user clicks a button on the EIP web application.</li> <li>• An API will be developed so that the Android UE and the EIP web application can communicate.</li> <li>• The Android application should follow all Google guidelines and acceptable for Google Play release.</li> <li>• All application and test source code will be provided to Ericsson at regular intervals and finally at the conclusion of the project.</li> </ul>
<b>Applicant Capabilities</b>	<ul style="list-style-type: none"> <li>• The team should have the following capabilities; <ul style="list-style-type: none"> <li>○ Multi-year experience developing Android applications</li> <li>○ Experience developing using Android NDK toolset</li> <li>○ Multi-year experience developing HTML5/Javascript/React web-based applications</li> <li>○ Experience developing C#/ASP.NET based back-end services</li> <li>○ Excellent understanding of 3GPP protocols and RF principles</li> </ul> </li> <li>• Have access to various 4G/5G UEs with a variety of modern chipsets.</li> </ul>
<b>Additional Information</b>	<ul style="list-style-type: none"> <li>• Integration with Ericsson Indoor Planner will require the team to use Ericsson development environment. This will most likely require physical presence at the Ericsson campus in Kanata, Ontario</li> </ul>

Launched in 2018, the [ENCQOR 5G SME Technology Development Program](#) Partners Ontario based SMEs with ENCQOR 5G Anchor Firms on 5G technology development projects. Areas of research interest are defined by Challenge Statements submitted to OCE by the [ENCQOR 5G Anchor Firms](#) and posted to the [OCE website on a rolling basis](#).

If you are interested in developing an expression of interest, please visit the [program guidelines](#) for information on next steps.

For any questions about new Challenge Statements or the ENCQOR 5G SME Technology Development Program please contact Sarah Fairlie at [sarah.fairlie@oce-ontario.org](mailto:sarah.fairlie@oce-ontario.org)