

Beyond Visual Line of Sight Drones Enabled by Enhanced Mobile Broadband

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| Challenge Launch Date | October 16, 2019 |
| Challenge Deadline | November 13, 2019 |
| Challenge Statement | Ericsson Canada is interested in working with an Ontario based SME company to conceptualize, design, and test a 5G compatible module for use with Remotely Piloted Aircraft Systems (RPAS) to allow for remote command and control, as well as aviation radio detection, transmission and edge processing to increase situational awareness in Beyond Visual Line of Sight (BVLOS) operations. |
| Project Partner | Ericsson Canada Inc. |
| Timeline | 1yr |
| Available funding | Up to \$250 000 over the project lifetime |
| Applicant Type | Ontario based SME Scale company |
| Location | <ul style="list-style-type: none"> • It is expected that the SME will perform all work at their site and have appropriate tools and software necessary to conduct this work. • During the course of the project the SME will have quarterly face-to-face meetings with Ericsson experts at the Ericsson Terry Fox site (347 Terry Fox Drive, Kanata, Ontario) as well as biweekly conference calls. • Some testing of prototyped solutions may also be completed at Ericsson's Terry Fox Lab in Kanata as well as the AVIN site in Ottawa |
| Project Details | <p>This is a pre-commercial prototype project in which the SME will work to create a module that will allow connection with an RPAS over cellular connection with 5G capabilities. Initial design and integration work may take several months with early and progressively refined concepts. The SME will manage prototype development and procurement costs. This project aims to increase operational success of first responders utilizing RPAS in BVLOS missions by allowing for "hear and be heard" functionality over aviation radio bands such that RPAS pilots can better coordinate with local air traffic in disaster scenarios such as wildfires where visibility of air vehicles is greatly reduced. Utilizing cellular connectivity to the cloud and remote ground control station, the RPAS pilot will be able to achieve command and control in scenarios without direct radio line of sight and will allow for complete off site remote control. An enhanced mobile broadband radio system will be required for uplink transmission of video streams and data.</p> |

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| | <p>The project module will allow for the following capabilities:</p> <ul style="list-style-type: none"> • Connection of RPAS to ground control station over cellular network • Live video streaming from RPAS to cloud over enhanced mobile broadband network • Remote command and control functionality over enhanced mobile broadband network • Detection and edge processing of aviation radio signals including digitization, selective parsing of data, and variable transmit capabilities • Explore the benefits of mission critical applications enabled by advanced network capabilities <p>Specific capabilities of the radio system should include</p> <ul style="list-style-type: none"> • Transmission capabilities on GMRS frequency via FM. • Transmission capabilities on VHF via AM. • Audio broadcast of Drone Altitude • Receiver should respond to 'double-keying' of mic to silence transmission for extended period • Allow RPAS pilot to record personal message in-field specifying intentions. • Real-time adjustment of broadcast frequency • Create ruggedized electronics housing and mechanical integration • Implement full-duplex transmission. |
| Project Goals/ Outcomes | <ul style="list-style-type: none"> • The selected SME will report on considered design options, performance assessments, issues, and cost points. • The selected SME will conduct demonstrations of the prototype to Ericsson |
| Applicant Capabilities | <ul style="list-style-type: none"> • The SME shall have extensive expertise in RPAS and systems integration • The SME shall have their own tools and capability to complete the project at their facility. • The SME shall have proven product expertise in operating RPAS in BVLOS scenarios and be certified to fly BVLOS by Transport Canada. • The SME shall be sponsored by a nationally, provincially or regionally recognized first responder group. • The SME shall liaise with all government regulatory bodies regarding obtaining permissions to conduct demonstrations. |
| Additional Information | <ul style="list-style-type: none"> • The SME shall present resume(s) for key team members as an attachment to their EOI application. |

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| | <ul style="list-style-type: none">• The SME shall be able to operate with minimum supervision.• The SME shall sign Ericsson standard NDAs for staff involved in the project |
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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 Jennifer Moles at Jennifer.Moles@oce-ontario.org.