

ENCQOR 5G SME Technology Development Challenge

Title: Indoor 5G/NR mmW Antennas

Challenge Launch Date	August 16, 2019
Challenge Deadline	September 13, 2019
Challenge Statement	Ericsson Canada is interested in working with and Ontario based SME scale company to conceptualize, investigate, simulate and test ultra low-cost high gain beam steerable cross-polarized hemispherical and specialized directional mmW (28 GHz) 5G omni indoor antennas.
Project Partner	Ericsson Canada Inc.
Timeline	2 years
Available funding	Up to \$240 000 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 simulation tools necessary to conduct this work. • This is a highly interactive process, requiring weekly face-to-face meetings with Ericsson experts at the Ericsson Terry Fox site (347 Terry Fox Drive, Kanata, Ontario) • Some testing of prototyped solutions may also be completed at Ericsson’s Terry Fox Lab in Kanata.
Project Details	<p>This is a pre-development or prototype project in which the SME will work with Ericsson to conceptualize and develop new antennas for Ericsson’s indoor 5G mmW offering. It is 75% conceptual with simulations, and 25% prototyping/testing.</p> <p>Lab work prototyping may take several months with early and progressively refined concepts. The SME will manage prototype development and procurement costs.</p> <ul style="list-style-type: none"> • The SME shall provide realistic 3D simulations including PCB level losses in transmit/receive paths, and through dielectric elements. • Simulations shall include calculated beam parameters for optimal performance for both antenna applications.

	<ul style="list-style-type: none"> • The SME shall design and verify a metalized plastic and/or reflector solution for the antenna prototype with verified performance. <p>This is expected to be a two-year project with multiple phases:</p> <ul style="list-style-type: none"> • Ramping up on 32-element 28 GHz beamforming chipsets and proposing/investigating antenna concepts and simulations to assess viable solutions for high- and low-density applications. • Detailed analysis and realistic simulations of selected solutions for high performance directional and hemispherical solutions based on a common electrical feeder platform. • Mechanical prototyping of factory configurable metalized plastic radome and/or reflectors for proposed applications. • Testing, at Ericsson’s Terry Fox lab in Kanata, prototyped solutions to confirm RF parameters and overall performance. • Assessing detailed cost analysis of antenna mechanical solutions through supplier RFQ process. • Preparing final reports for solution, including scaled application for standard mmW bands. <p>The SME is responsible for all work and will report face-to-face during weekly Ericsson meetings.</p>
<p>Project Goals/ Outcomes</p>	<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 provide to Ericsson prototyping options, with lab verified performance, and RFQ verified costs. • The selected SME will deliver to Ericsson electrical and mechanical drawings of proposed antenna solutions.
<p>Applicant Capabilities</p>	<ul style="list-style-type: none"> • The SME shall have extensive expertise in antenna design as well as a good understanding of indoor radio systems and antenna technologies. • The SME shall have their own simulation tools and capability to complete the project at their facility. • The SME shall have proven product expertise in development of new, innovative high frequency antennas for indoor products. • The SME shall have access to prototype facilities for metalized plastics technologies.

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.• The SME shall be able to operate with minimum supervision.• The SME shall sign Ericsson standard NDAs for staff involved in the project• The SME will be required to release all IPR related to this challenge to Ericsson but may retain educational IPR and design expertise.

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