

## 5G (ENCQOR) Technology Development Challenge – Omni 5G Indoor 5G/NR mmW Antennas

<b>Challenge Launch Date</b>	January 15, 2019
<b>Challenge Deadline</b>	February 14, 2019
<b>Challenge Statement</b>	Ericsson is interested in working with an Ontario based SME to conceptualize, investigate, simulate and test low cost high gain hemispherical mmW (28 GHz) 5G omni indoor antenna options for cross-polarized switched metalized plastic horn antennas.
<b>Project Partner</b>	Ericsson Canada Inc.
<b>Timeline</b>	<ul style="list-style-type: none"> <li>• This is a two-year project: <ul style="list-style-type: none"> <li>• 4 months ramping up on NR switching capabilities, setting performance/cost and test specs;</li> <li>• 8 months simulating various solutions performance, detailing electrical and mechanical design requirements;</li> <li>• 4 months assessing cost/performance trade-offs for each option through supplier RFQ process; and</li> <li>• 8 months receiving/testing options for final reports with prototype solutions.</li> </ul> </li> </ul>
<b>Available funding</b>	This project is expected to be funded to \$350K CDN over 2 years.
<b>Applicant Type</b>	Ontario based SME Scale company
<b>Location</b>	<ul style="list-style-type: none"> <li>• It is expected that the SME will perform all work at their site, and that will have all appropriate simulation tools necessary to conduct this work. The SME will manage RF and mechanical aspects and will be responsible for prototype HW and RF testing costs.</li> </ul>
<b>Project Details</b>	<ul style="list-style-type: none"> <li>• This is a pre-development or “prototype” project in which the SME will work with Ericsson to conceptualize and develop new hemispherical antennas for Ericsson’s indoor 5G offering.</li> <li>• The SME is responsible for all work and will report during weekly or bi-weekly Ericsson meetings.</li> <li>• The SME shall simulate PCB level losses in transmit path(s) from PA(s) to antennas; and receive path(s) from antennas to LNA(s).</li> <li>• The solution shall include Ericsson control aspects for antenna.</li> <li>• The SME shall deliver a 5G 28 GHz antenna prototype with verified performance and through RFQs, proof points of cost effectiveness.</li> <li>• 5G requires new high-performance antenna technology, which this project will investigate and deliver as a prototype.</li> </ul>

<p><b>Project Goals/ Outcomes</b></p>	<ul style="list-style-type: none"> <li>• The project goals / outcomes are: <ul style="list-style-type: none"> <li>• Formal report(s) on considered design options, performance assessments, and cost points.</li> <li>• Prototype(s) of the selected design option(s), with lab verified performance, and RFQ verified costs, and</li> <li>• Electrical and mechanical drawings and specifications.</li> <li>• This project leverages Ericsson’s radio frequency switchable waveguide IPR, and conceptual NR switched solution.</li> <li>• The SME will be required to release any antenna IPR related to this prototype to Ericsson but may retain all educational IPR and design expertise.</li> </ul> </li> </ul>
<p><b>Applicant Capabilities</b></p>	<ul style="list-style-type: none"> <li>• The SME shall have university contacts for design reviews</li> <li>• The SME shall have full simulation tools and capability.</li> <li>• The SME shall have product expertise in development of new, innovative high frequency antennas for indoor products.</li> <li>• The SME shall have access to prototype and test facilities, including PCB prototypes, and possibly metalized plastics technologies.</li> <li>• The SME should have access to RF test equipment and may be able to use Ericsson RF test equipment.</li> </ul>
<p><b>Additional Information</b></p>	<ul style="list-style-type: none"> <li>• The SME shall present resume and references for all staff.</li> <li>• The SME shall be able to operate with minimum supervision.</li> <li>• The SME shall have a good understanding of indoor radio systems and antenna technologies.</li> <li>• The SME shall sign Ericsson standard NDAs for contractor staff.</li> </ul>