5G (ENCQOR) Technology Development Challenge Template

Utilizing 5GHx Unlicensed Spectrum

Challenge Launch Date	• March 13, 2019
Challenge Deadline	• April 10, 2019
Challenge Statement	Spectrum is the lifeblood of wireless technologies. 5G technologies need more spectrum to fulfill their promises to deliver the next leap in wireless communications. There are chunks of unlicensed spectrum at 5GHz that go unused due to strict regulatory requirements on radio emissions. Be the first to develop radio technology to utilize fallow 5GHz unlicensed channels for 5G technologies such as LTE-Advanced and 5G NR.
Project Partner	Ericsson Canada Inc.
Timeline	6-9 months
Available funding	$70,000 - $100,000
Applicant Type	Ontario SME with radio development expertise including power amplifier and filter design
Location	Much of the work can be done remotely. Visits for testing and design workshops at Ericsson's Ottawa facility.
Project Details	Ask a Wi-Fi engineer about channel 32 and they'll probably tell you it doesn't exist. It does! It's just that no devices have been able to use it due to strict regulatory requirements. Today, a 20MHz chunk of the 5GHz unlicensed band goes unused by any devices today. The 5150-5170MHz channel (IEEE channel 32) has strict regulatory out of band emissions requirements. Develop a radio front end solution (e.g. PA, filter, channelizers) suitable for a small form factor radio product to enable LTE LAA 20MHz carrier transmissions at 5150-5170MHz with the maximum permitted output power while complying to the out of band emissions requirements from ISED and the FCC. Perhaps more broadly: Develop a radio front end solution so that an LTE-Advanced LAA 20MHz carrier can use the band edge channel at 5150-5170MHz at full output power while meeting Canadian and FCC emissions requirements.

	Even better if the technology can be applied to other unlicensed bands where chunks of spectrum are going unused due to similar regulatory requirements.
Project Goals/ Outcomes	We are looking for working prototypes that can be quickly turned into commercial products and integrated with Ericsson and 3rd party 5GHz radios. It needs to have a small formfactor, lightweight and cost effective. The challenge should end with a live air demonstration of the prototype (integrated with a suitable Ericsson radio) as the final step. There may be IP generated: 1) Related to the development of the solution and prototype. Ericsson would have access to such IP for use in its products. 2) Related to the integration of the solution with Ericsson products. Such IP would be owned by Ericsson.
Applicant Capabilities	Radio technology for wireless telecommunications systems, radio hardware and radio filter development
Additional Information	Work closely with Ericsson Canada's world class radio development team to build a prototype that can be integrated into future Ericsson unlicensed radio products.

Launched earlier this year, 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