



The Center of Excellence for Communication Systems Technology Research

CECSTR CURRENT RESEARCH PROJECT ACTIVITIES

Research Topic: Dynamic Spectrum Access: Analysis, Testing, Measurement and Optimization of Energy Detectors

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Statement of Work

Despite the increasing efficiency of technologies, the demand for bandwidth exceeds the availability of spectrum for new communication services and networks. These growing trends include work from home and virtual learning pertaining to the COVID-19 pandemic and increased demand for low-power wide-area (LPWA) networks in the IoT applications.

Research Expectations

We intend to explore the areas of spectrum for new communication services and networks for testing and measurement such as:

- (i) developing efficient testing and measurement frameworks for analysis of wideband spectrum sensing using energy detectors;
- (ii) development of frequency domain testing and measurement based on energy detector (modified periodogram); and
- (iii) analyzing and testing ultra-wideband (UWB) radar sensor networks based on energy detection.

Some of these challenges include interoperability, spectral crowding and global seamless connectivity. These challenges become more of a concern with the tremendous growth in the wireless industry. Development of ideas on how to implement items (i) to (iii) above.