

1 Abstract

The goal of this essay is the development of an application that extends and enhances the functionalities provided by the field strength measurement device VIAVI ONA-800. The device is used during the Institute of High Frequency Technology's research on electromagnetic environmental impact and offers multiple measurement modes. However, the functionalities of some could be expanded upon, which will be a central goal of the application. This essay will discuss the devices functionalities, as well as its shortcomings, in greater detail and will thereby derive requirements and constraints for the application. Whereafter, the framework choice will be discussed and the eventual choice of Qt [Qt2] will be substantiated. Specific implementation details will also be discussed in this essay, including, but not limited to, the internal representation of measurement options and specific data structures necessary to efficiently render a spectrogram for the real-time spectrum visualization. Finally, this essay will show that the application, while satisfying all requirements, outperforms the device's logging functionality, which can be used to record measurements.