The Executive Summary, Introduction/Literature Review/State of the Art, and Design Requirement and Considerations sections are directly from the project proposal, so I didn’t include them in this first draft. (For the simulation method, I didn’t find reference papers

**Design Implementation** – Explain in detail the design of your software / program and hardware. Don’t only focus on what worked. Where did things fail or have to be redesigned? Be specific; could someone rebuild what you’ve created with the information you’ve provided?

Matlab will be used as a tool for this project to reconstruct RF waveforms and simulate the proposed system by producing an estimate for the Angle of Arrival (AOA). Overall, there are two simulation methods I hope to implement. The first one is relatively straightforward. It only involves using Matlab software to extract I and Q information, calculate the cross-correlation of the extracted signal sequence, and calculate the phase difference between the synchronized signals. However, although this method is relatively simple, we ran into a lot of problems while installing the Support Package for RTL-SDR Radio on Matlab. (documented code snippets as well as discussion on the experienced failures when dealing with RTL-SDR Support Package for Matlab, and references for using Matlab to extract I and Q data and the cross-correlation function). The second method does not take advantage of the I and Q extraction ability of the Matlab platform. Instead, we would pass in simulated sine waves and use the test suite in EttusResearch provided github. (documented code snippets and discussion on the bugs when integrating Matlab code with the provided code on github).