Appendix A3: Software Test Plan

The Software Test Plan shall include:

1. Describe how the project will:
   1. Document test inputs

*All test inputs will be in the form of scripts that can be run. The scripts will contain enough documentation on how to use the test cases.*

* 1. Record and evaluate test results,

*Test results will be evaluated by inspection of simulation results. If simulation results agree with the expected outcomes (documented in the scripts), the test is considered successful.*

* 1. Document the evaluation

*A log of test results will be maintained in the repository. Any comments to the developer based on test evaluation will be conveyed to the developers via email or the revision control management system.*

* 1. Address and track defects to closure

*Any discrepancies for test results will be conveyed to the developers via the revision control management system.*

* 1. Specify where results and evaluations are retained

*A log file will be maintained in the repository along with the main code.*

1. Tests cases.

*The following test cases describe the verification of geofence and traffic encounters. There will be several test cases for each of these categories to test different kinds of encounters. Additional categories and test cases will be added as the research progresses.*

*Category 1:*

* *Verification of keep in and keep out geofence performance*
  + *Run script TestCase1 using the MAVProxy ground station in the SITL framework.*
  + *The above scripts sets up a simple mission with keep in and keep out geofences*
* *Expected behavior*
  + *The vehicle must reroute itself around the keep out geofence.*
  + *The vehicle must stop and step back when it encounters the keep in geofence*
  + *The vehicle must continue onto the next waypoint.*

*Category 2:*

* *Verification of traffic conflict resolutions*
  + *Run script TestCase2 using the MAVProxy ground station in the SITL framework.*
  + *The above script sets up a simple mission with traffic.*
* *Expected behavior*
  + *The vehicle must maneuver clear of the traffic when it approaches to within approx. 10 -15 m of the intruder.*
  + *Once the vehicle maneuvers clear of the traffic, it must return to the original path and continue with the mission.*

1. Test milestones

*There are no specific test milestones. Tests will be evaluated every time major changes are made to the software.*

\*Testing environment(s), site(s), personnel, and participating organizations.

*See Appendix A1.d for the engineering environment requirements.*