3.1 Test Techniques

The main test technique used was functional testing.

At the unit level, functional testing was used to verify drone movement matched the move size and angle requirements, and to ensure no-fly zones were avoided. These tests used assertions to ensure tests only passed if requirements were met.

A functional integration test was used to ensure all movement units combined to produce a valid 2D path. A path was considered valid if all movement constraints were adhered to, and the test only passed if a path was found to be valid.

Integration with the external ILP REST service was also validated functionally by storing retrieved data in appropriate data structures and verifying that the size of the retrieved dataset matched the expected values obtained through manual inspection of the source data.

At the system level, end-to-end functional tests were used to validate the behaviour of the entire system, including correct JSON output and verifying that tasks completed in under 30 seconds. Correct JSON output was tested through trying to parse the output string as a Json object, and the test failing if there was an error. The 30-second performance requirement was tested through timing complex tasks and ensuring tasks completed within the timeframe.

Other testing techniques discussed in lectures were not explicitly applied, as they were not appropriate given the nature of the requirements and the project scope.