DOCUMENT 01 / OBSERVED TEST EVIDENCE

Proof of concept test report

Autonomous three-point navigation and stabilization

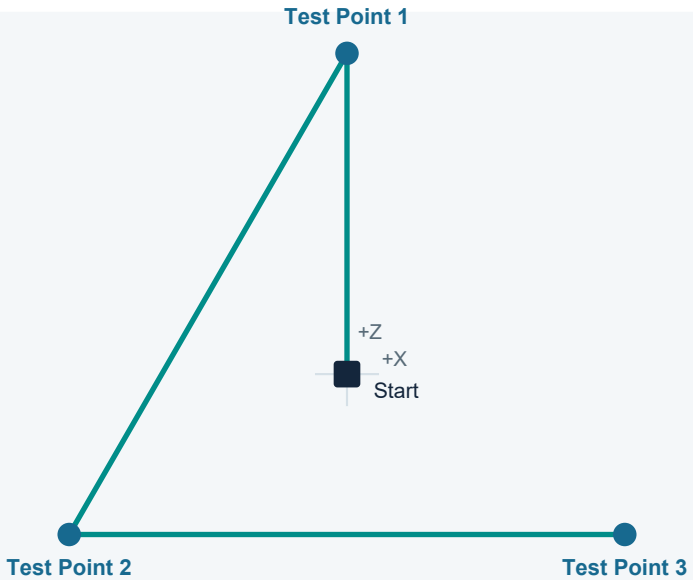
Scene revision 9 | Completed simulation run | 23 Sep 2026 UTC

Executive finding

The MCU completed the commanded route through all three relocated test points in one continuous 50 s PrototypeX run. The simulation log recorded each arrival and the final state showed all three reached flags set. No invalid numeric state, escaped body, or hardware ground-contact message was observed in the five reviewed segments.

Milestone	Simulation time	Evidence
Test Point 1 reached	12.53 s	MCU log: Reached Test Point 1
Test Point 2 reached	28.08 s	MCU log: Reached Test Point 2
Test Point 3 reached	44.98 s	MCU log: mission complete
Final sample	50.00 s	GPS (6.8570, 1.0198, -3.7995) m; horizontal target distance 0.1463 m; reached flags 1/1/1

Scene and test setup



Each point 7.887 m from center; sides ~13.660 m

The square hollow platform is approximately 2.0 × 2.0 × 0.5 m. The three point markers were moved 5.0 m farther radially from the initial center, to a radius of 7.88675 m. Their resulting mutual separation is approximately 13.660 m. The target height was 1.0 m in the scene's world-Y-up frame.

Marker	World position (m)	Radial distance
Test Point 1	(0.0000, 0.0150, 7.88675)	7.88675 m
Test Point 2	(-6.83013, 0.0150, -3.94338)	~7.88675 m
Test Point 3	(6.83013, 0.0150, -3.94338)	~7.88675 m

Observed motion and control

- Across five 10 s segments, the highest recorded body angular speed was 0.0362 rad/s and the highest recorded linear speed was 1.4638 m/s. These are simulation measurements, not hardware measurements.
- At the final sample, GPS velocity was approximately (0.0117, 0.0015, -0.0041) m/s and reported orientation was (-0.2391°, 0.2394°, -0.4290°).
- The controller used GPS position and velocity, IMU attitude/acceleration/angular velocity, and altimeter height/rate to adjust side, lift and corner trim thrusters.

Evidence basis and interpretation

Source: PrototypeX MCP scene revision 9, snapshot a88630685a251dd1fab6593f7f2def4a6a8c7a00d4e18251c431107e21189df1, and the reviewed 0-50 s simulation log from session 6bb4721d943f43d7800d54f46539d4a2. Arrival timestamps and final telemetry are directly observed log values. Marker spacing is calculated from the inspected coordinates. The simulation was exactly rewound to the authored rest state after the test.

The results establish behavior of this scene under this one simulated run. They do not establish repeatability, disturbance tolerance, physical thrust feasibility, hardware clearance, or real-world performance.

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