

FOC Test Report: demo_high_speed_motion

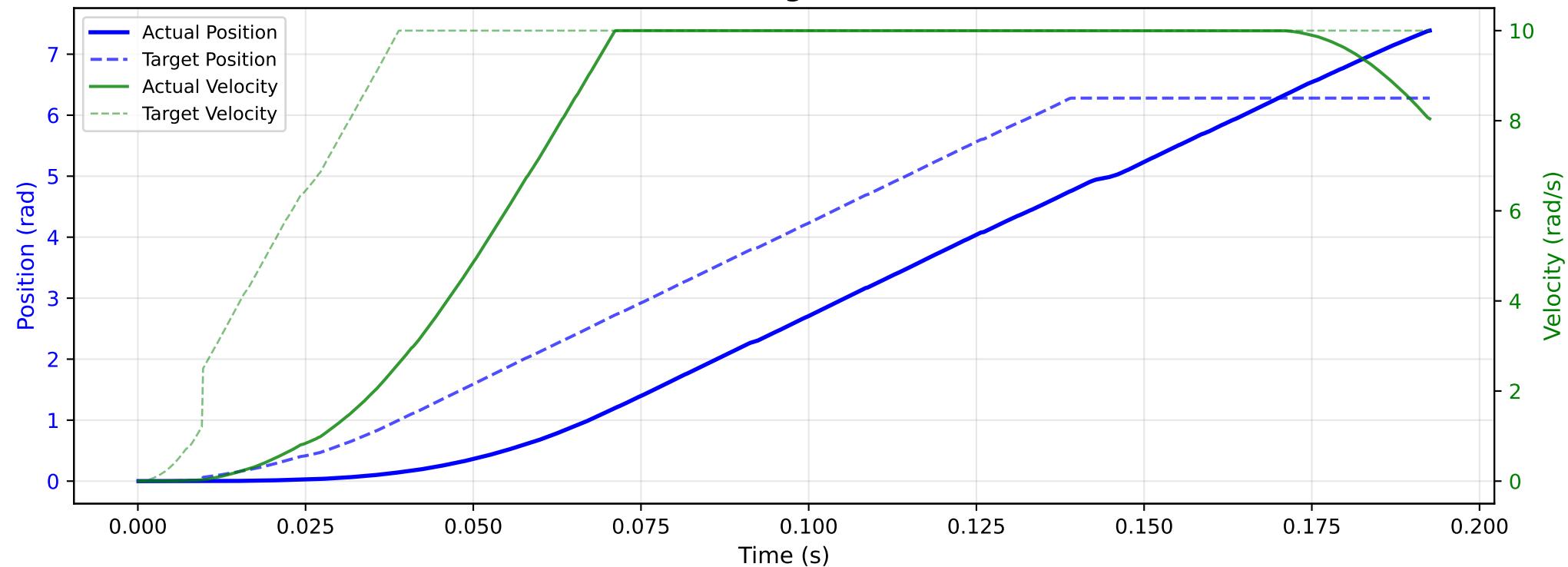
Test Name: demo_high_speed_motion
Platform: Renode STM32G431CB
Firmware: iRPC v2.0
Start Time: 2025-10-10 14:47:04

Samples Collected: 1000
Test Duration: 0.193 s

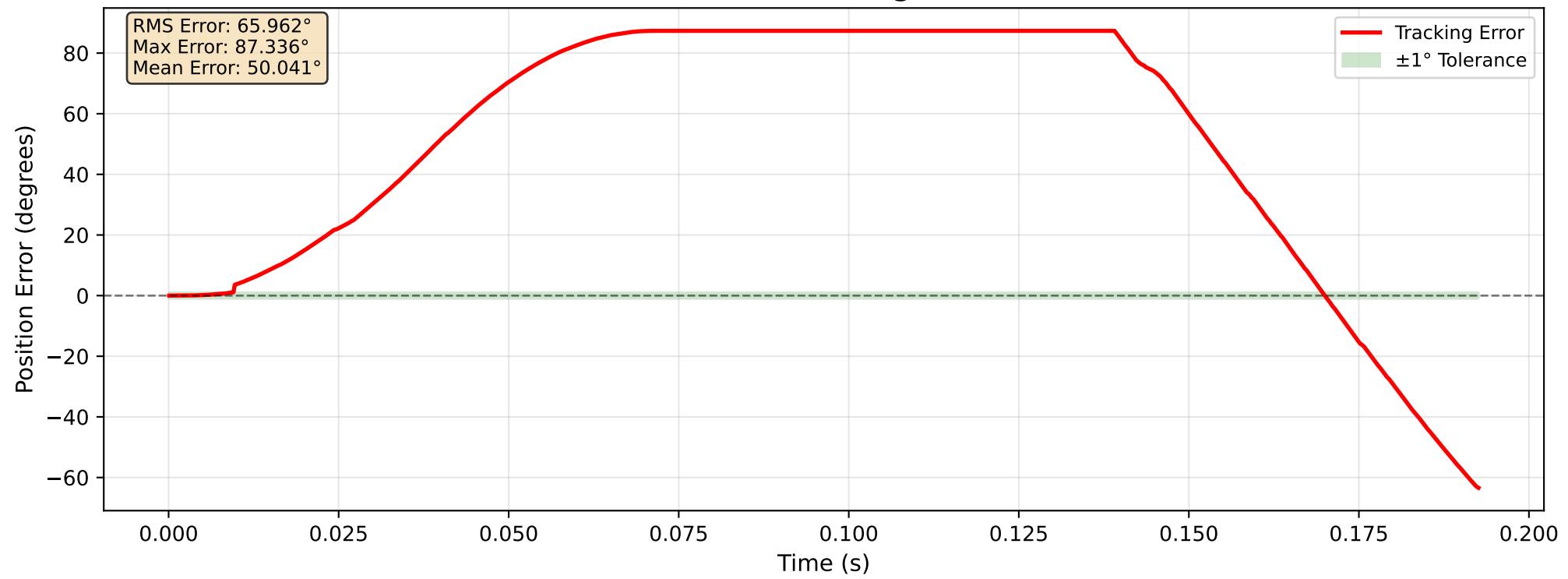
Performance Summary:

Position Range: [0.000, 7.386] rad
Position Std Dev: 2.435 rad
Max Velocity: 10.000 rad/s
Peak Current (I_q): 10.00 A
Mean Current (\bar{I}_q): 6.23 A

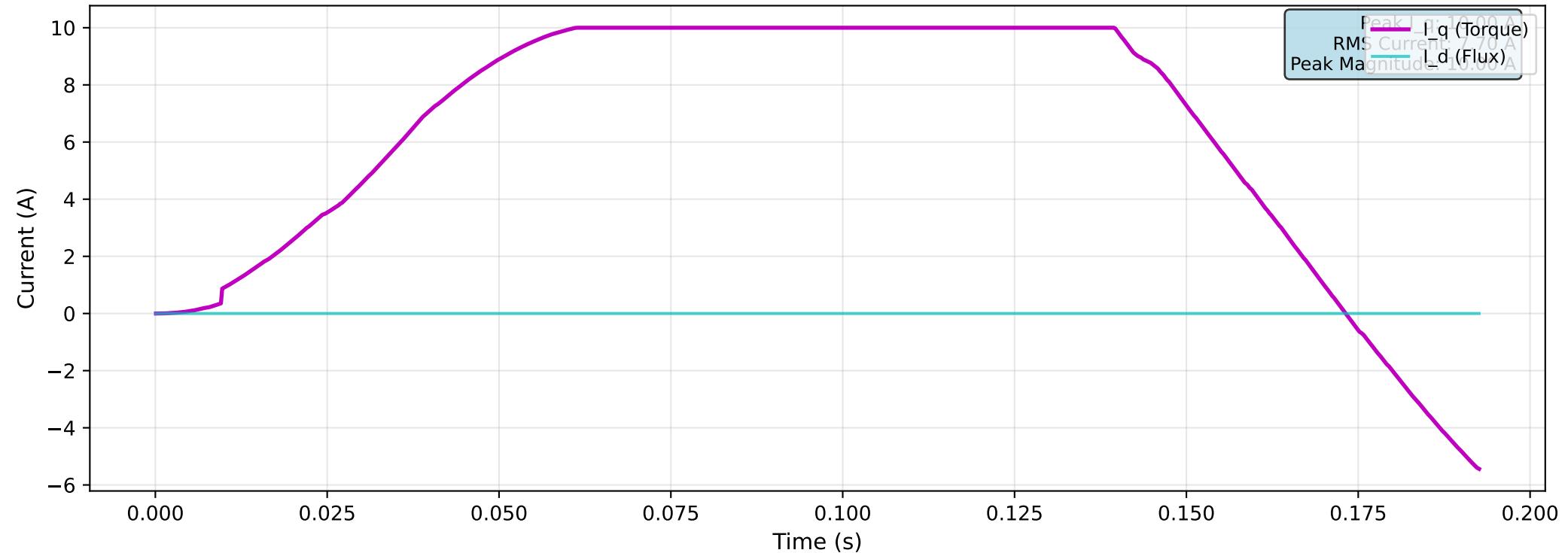
Motion Tracking Performance



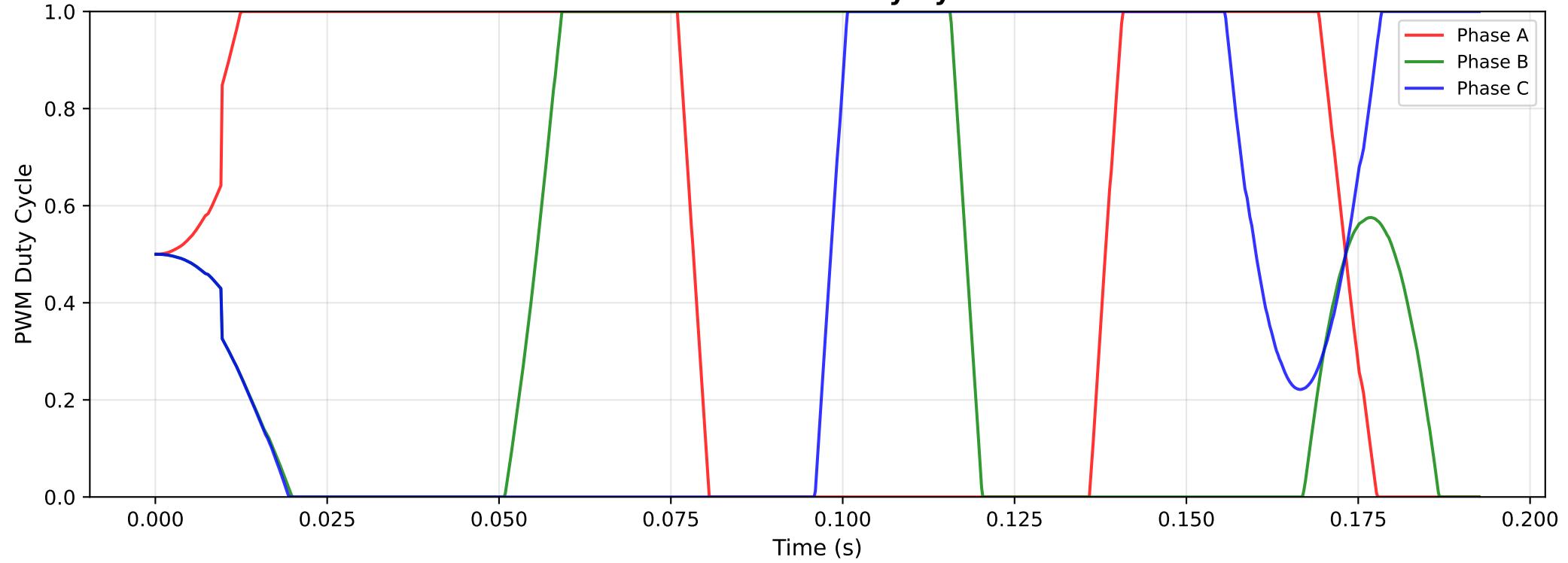
Position Tracking Error



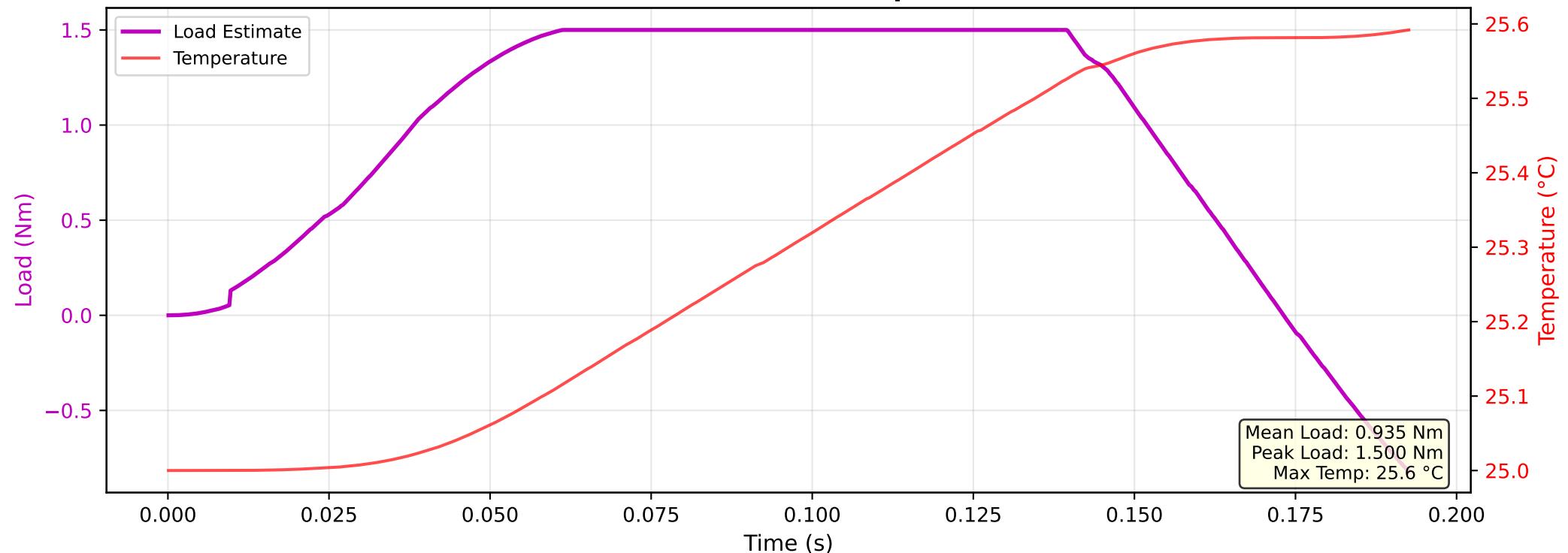
FOC d-q Axis Currents



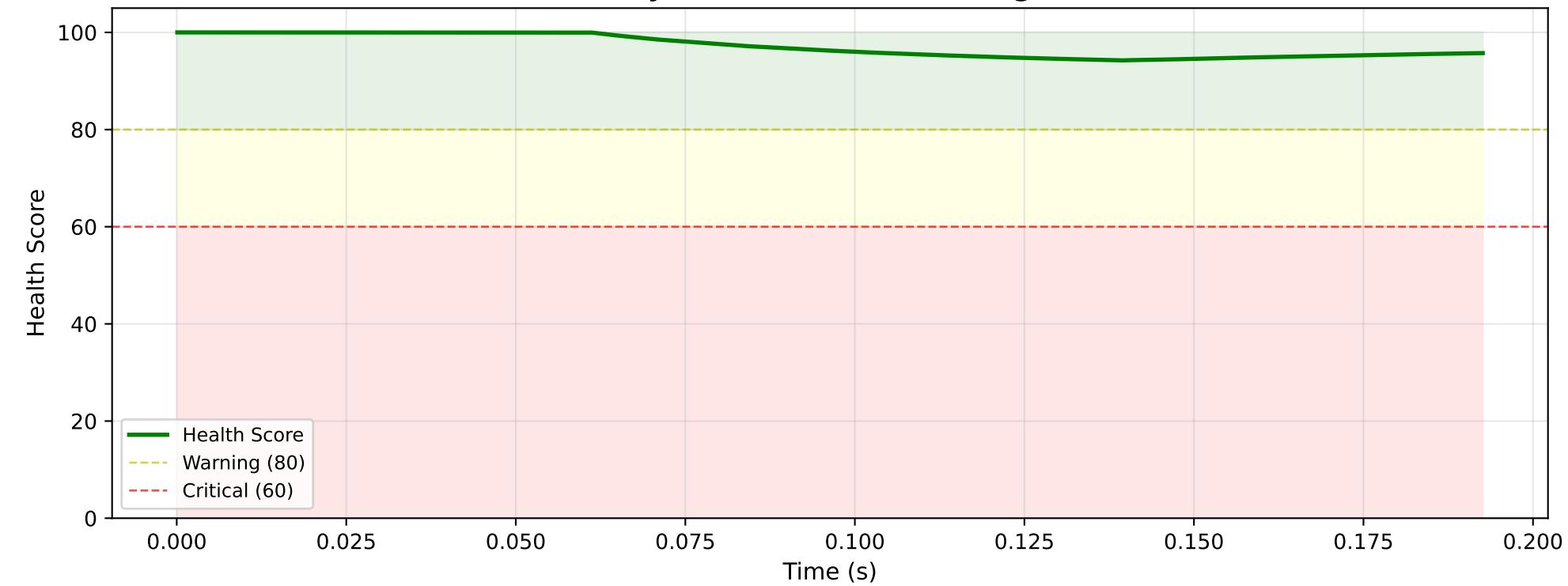
3-Phase PWM Duty Cycles



Load Estimation & Temperature



System Health Monitoring



Phase Diagram (Position-Velocity)

