

# FOC Test Report: demo\_trapezoidal\_profile

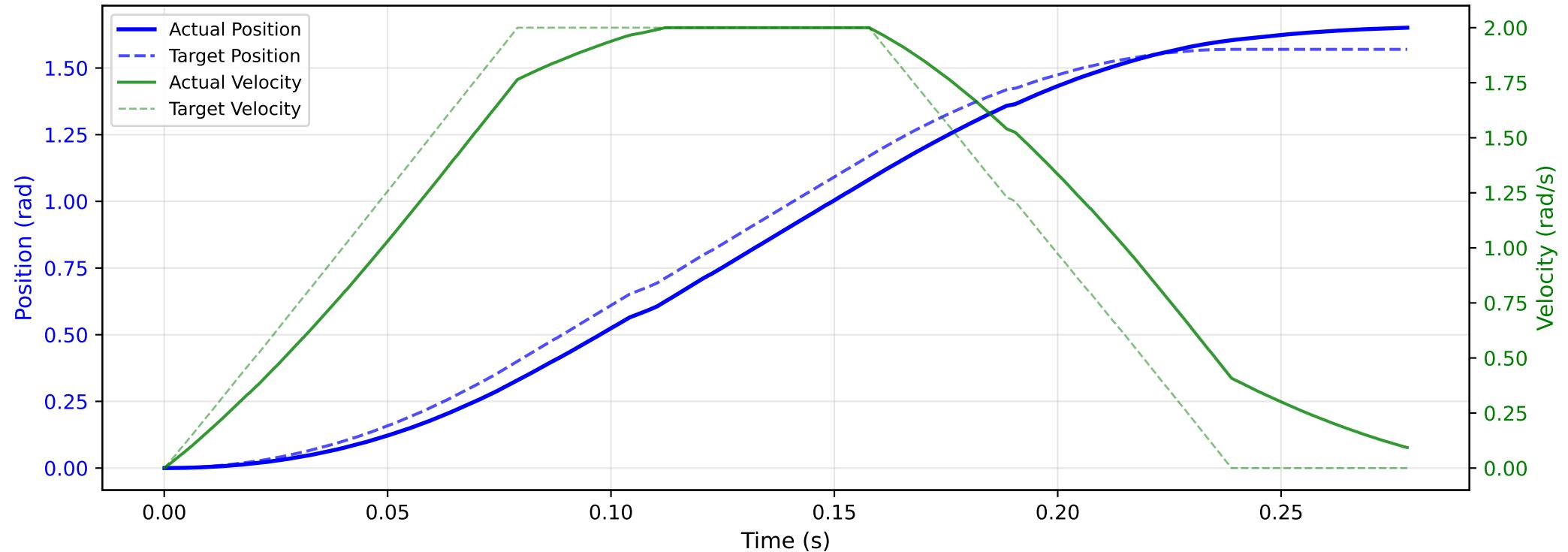
Test Name: demo\_trapezoidal\_profile  
Platform: Renode STM32G431CB  
Firmware: iRPC v2.0  
Start Time: 2025-10-09 17:37:16

Samples Collected: 1385  
Test Duration: 0.278 s

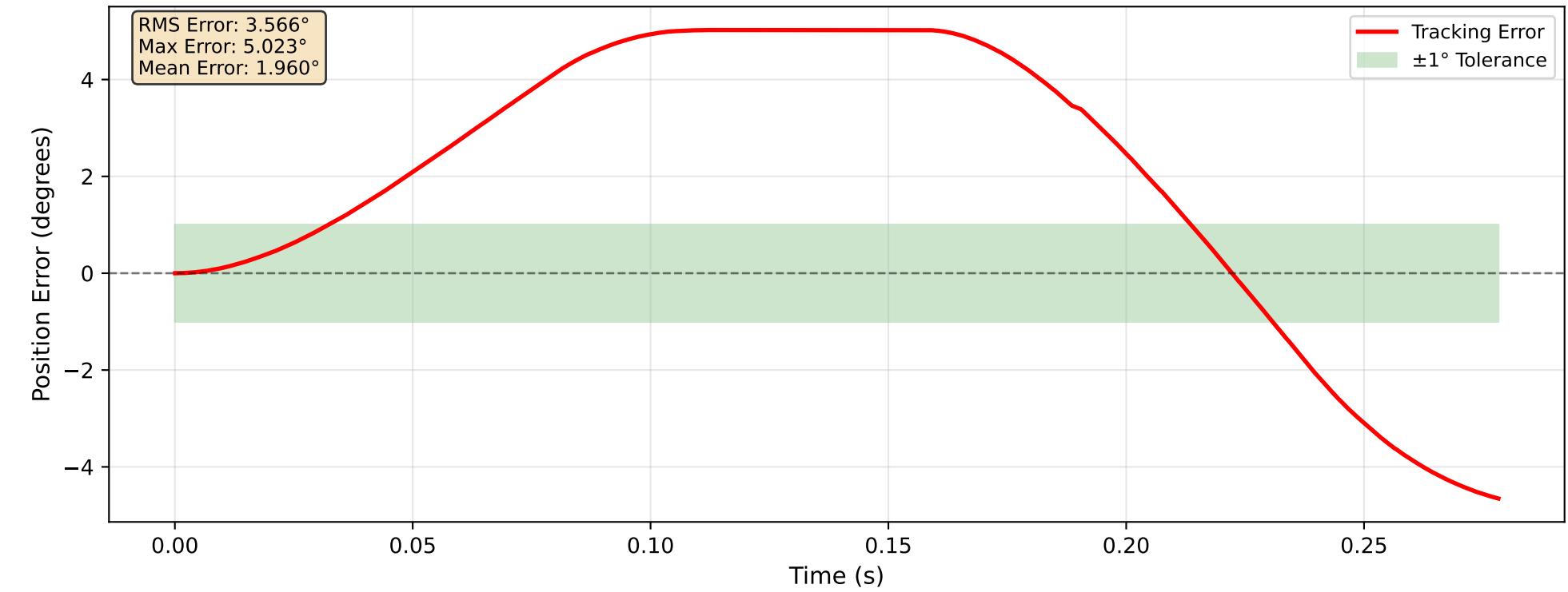
## Performance Summary:

Position Range: [0.000, 1.651] rad  
Position Std Dev: 0.604 rad  
Max Velocity: 2.000 rad/s  
Peak Current ( $I_q$ ): 0.60 A  
Mean Current ( $I_q$ ): 0.10 A

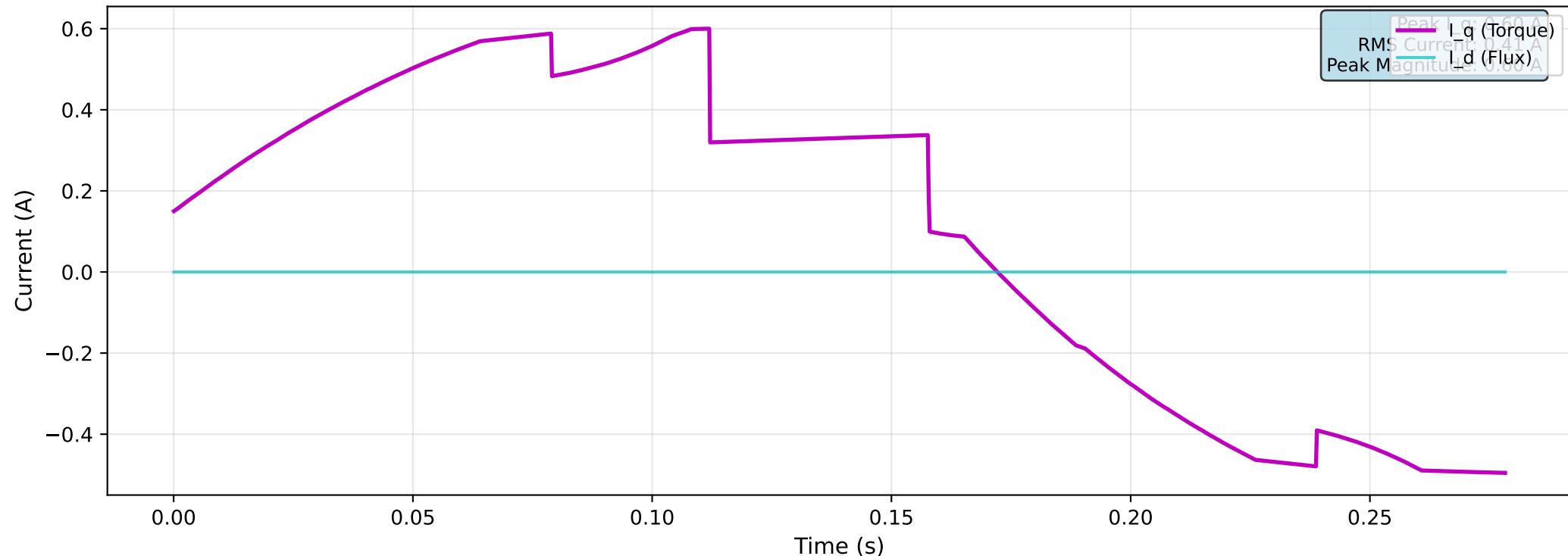
## Motion Tracking Performance



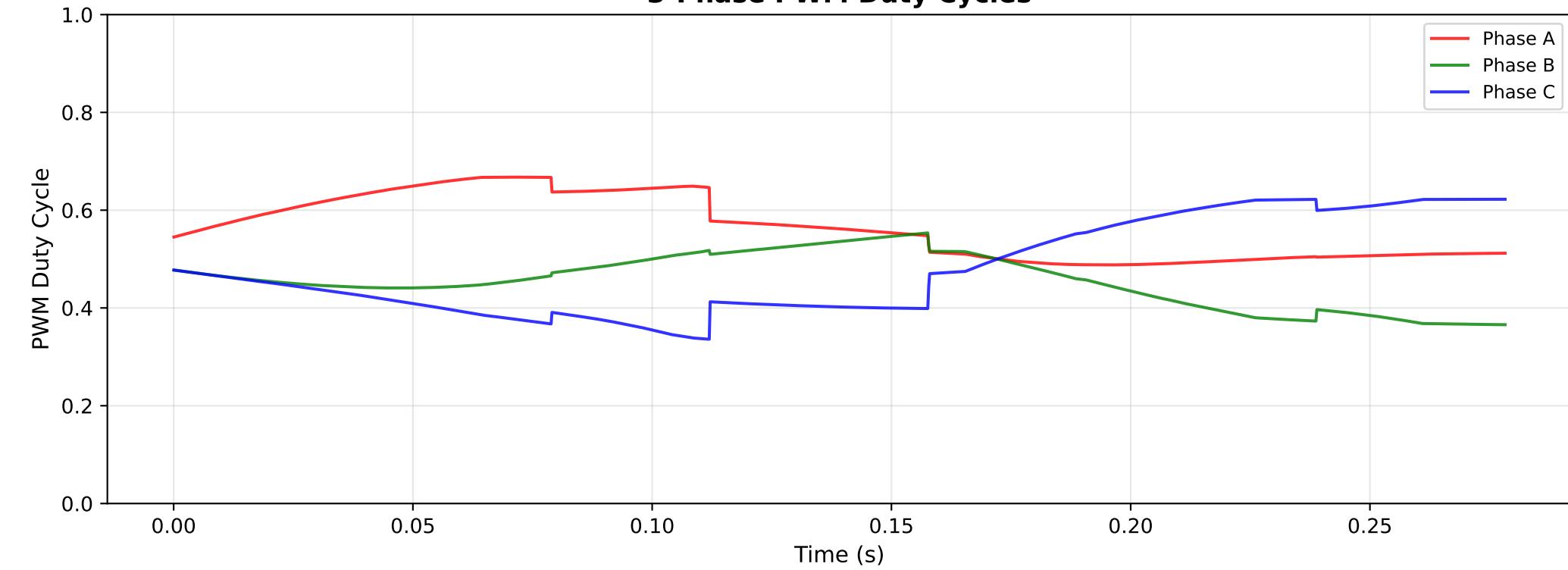
## Position Tracking Error



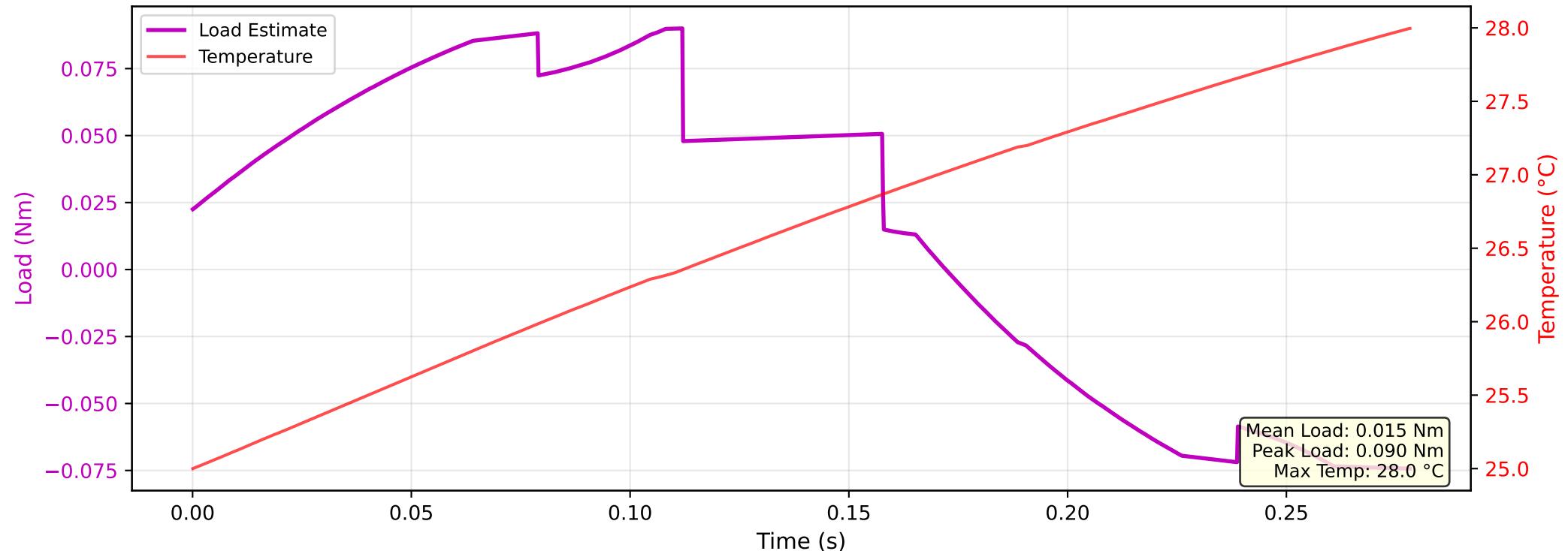
## FOC d-q Axis Currents



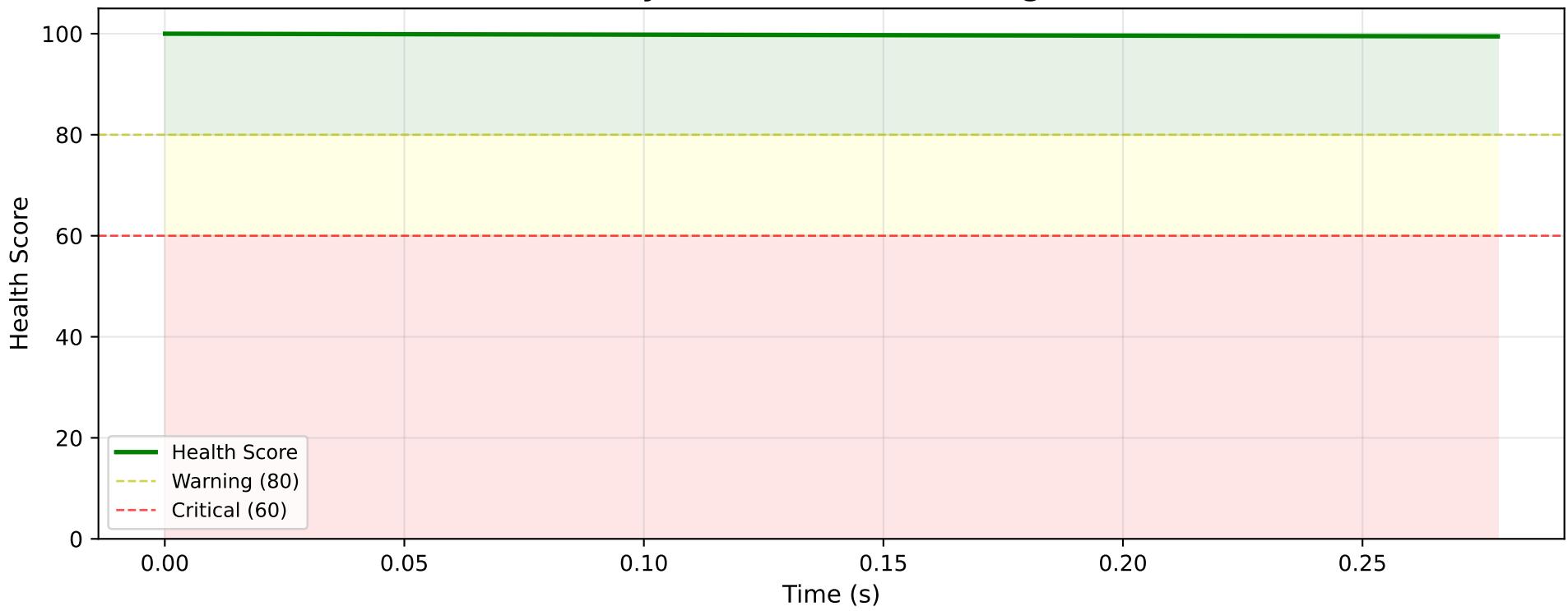
## 3-Phase PWM Duty Cycles



## Load Estimation & Temperature



## System Health Monitoring



# Phase Diagram (Position-Velocity)

