Position and Attitude Response of Model B.2 Compared to PID and Model B.1 in the Nominal Case 1.00 r 1.00  $x_{ref}$  $z_{ref}$ 0.750.758.0  $x_{PID}$  $z_{PID}$ 0.500.50 $x_{B.1}$  $z_{B.1}$ x Position [m] Position [m] Position [m]  $x_{B.2}$  $z_{B.2}$ 0.250.25With no faults, all models 0.00 0.00 successfully hover around the target for > 60 seconds. -0.25-0.2565 -0.50-0.505.5 $y_{PID}$  $y_{B.1}$ -0.75-0.755.0  $y_{B.2}$ -1.00-1.004.510 20 30 40 50 60 10 20 30 40 50 60 10 20 30 40 50 60  $15\,$ 15 г  $heta_{PID}$ 50 10 10  $\theta_{B.1}$  $\theta_{B.2}$ Angle [degree] Angle [degree]  $\theta$  Angle [degree] 30  $\psi_{PID}$ 20  $\psi_{B.1}$  $\psi_{B.2}$ 10 Þ  $\phi_{PID}$ -10 $\phi_{B.1}$ -10

-10 $\phi_{B.2}$ -15-15-2010 20 30 40 50 60 10 20 30 40 50 60 10 20 30 40 50 60 Time [s] Time [s] Time [s]