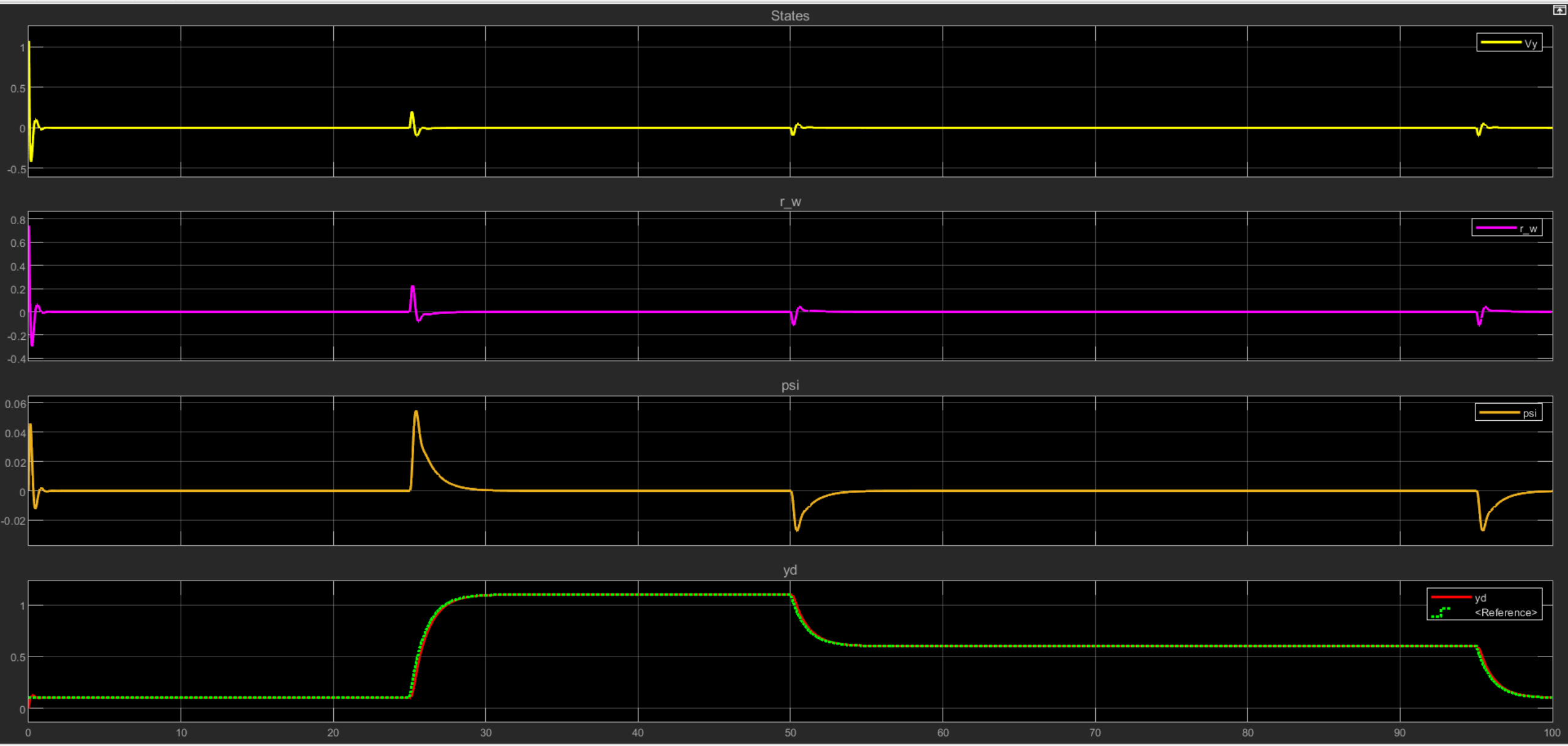
State

File Tools View Simulation Help



Ready

Sample based T=100.000

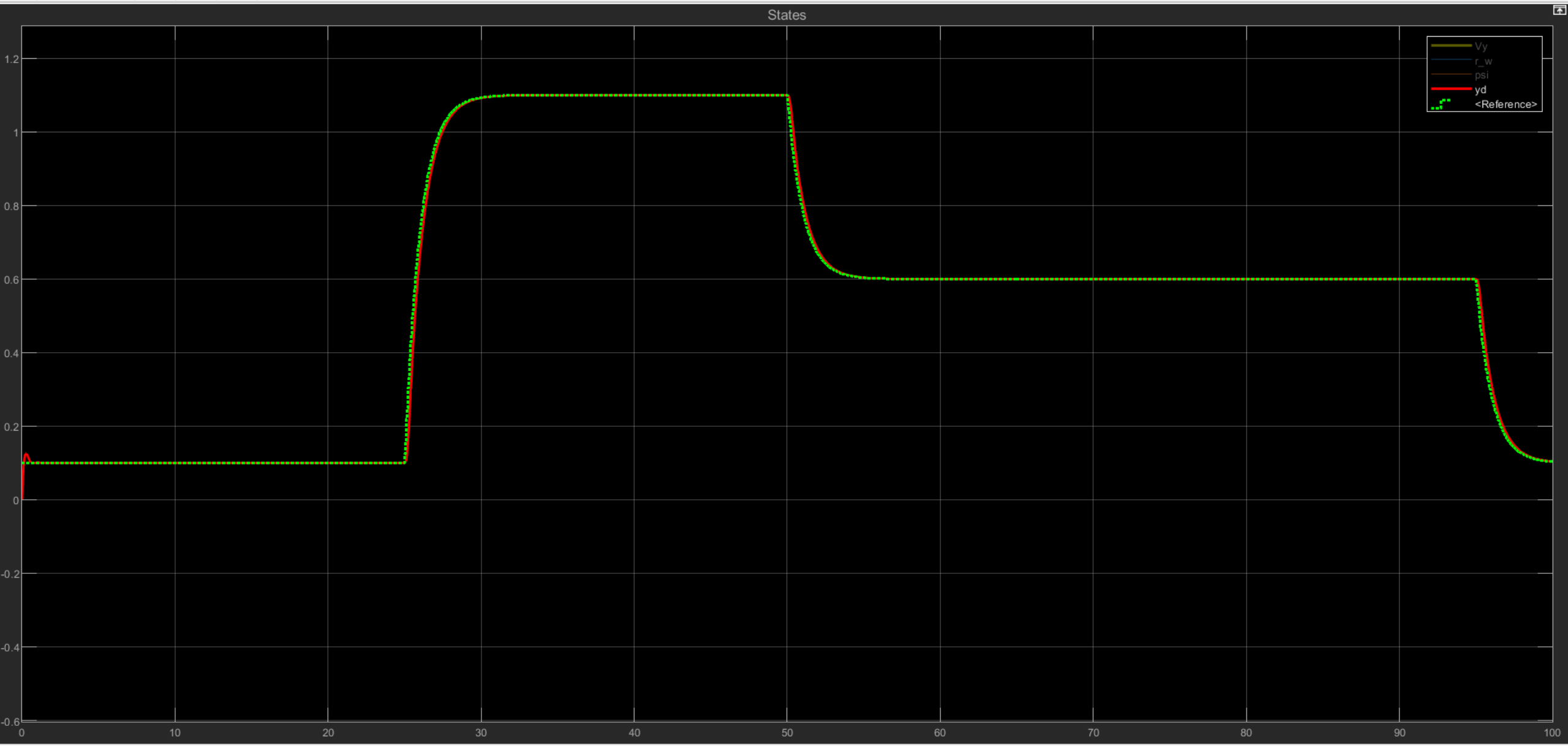
Type here to search

8°C Nuvoloso

ENG IN 22:46 03-Dec-25

State

File Tools View Simulation Help



Ready

Sample based T=100.000

Type here to search

8°C Nuvoloso

ENG IN 22:49 03-Dec-25

$$\dot{y}_d = V_y + V_x \psi$$

$$X = \begin{bmatrix} V_y \\ r_w \\ \psi \\ y_d \end{bmatrix} \qquad y = y_d + v$$

$\psi = \emptyset \rightarrow$ the car aligned with lane

$$\dot{v}_y = \left(-m v_x r_\omega + F_{Fy} + F_{Ry}\right) / m$$

$$\dot{r}_\omega = \left(a F_{Fy} - b F_{Ry}\right) / I_z$$

$$\dot{\psi} = r_\omega$$

$$\dot{y}_d = v_y + v_x \psi$$

$$X = \begin{bmatrix} v_y \\ r_w \\ \psi \\ y \end{bmatrix}$$

$$y = y + v$$

$$e = (y + v)r$$

Equilibrium triplet

$$e^* = y_d^* + v^* - r_{ef}^* = \emptyset$$

$$v^* = \emptyset$$

$$\therefore y_d^* = r_{ef}^*$$

$$f_1 = \dot{v}_y = \left(-m v_x r_\omega + F_{F_y} + F_{R_y}\right)/m = \emptyset$$

$$v_y^* = -m^* v_x^* r_\omega^*$$

$$f_3 \quad \dot{\psi} = r_\omega = \phi \cdot 1$$

$$f_2 = (a F_{Fy} - b F_{Ry}) / I_z = \phi$$

$$f_4 = V_y^* + V_x^* \underbrace{\psi^*}_{\phi} = \phi$$

$$V_y^* = \phi$$

$$u =$$