I used the following from the USNO almanac online:

Body	GHA	Dec	Ho	Zn
Sirius	80º 0.7'	S16º 44.1'	37º 16.2'	159.1
Jupiter	152º 42.9'	N10º 24.5'	34º 23.6'	259.1

$$\cos d = \sin d_1 \sin d_2 + \cos d_1 \cos d_2 \cos(\Delta GHA)$$

ΔGHA= | 80.0117º – 152.7150º| = 72.7033º

d_1= -16.7350º, (treat South as negative)

d_2= 10.4083º

cos(d)= sin(-16.7350º)sin(10.4083º)+cos(-16.7350º)cos(10.4083º)cos(72.7033º)
cos(d)= 0.2280
d= 76.8194

$$\cos(\omega) = \frac{\sin d_2 - \sin d_1 \cos d}{\cos d_1 \sin d}$$

using d=76.8194º in the above formula, we get

$$\cos(\omega) = \frac{\sin(10.4083) - \sin(-16.735)\cos(76.8194)}{\cos(-16.735)\sin(76.8194)}$$

cos(ω)= 0.2642
ω = 74.6806º

$$\cos(\rho) = \frac{\sin h_2 - \sin h_1 \cos d}{\cos h_1 \sin d}$$

Solve for ρ:

$$\cos(\rho) = \frac{\sin(34.3933) - \sin(37.2700)\cos(76.8194)}{\cos(37.2700)\sin(76.8194)}$$

cos ρ= 0.5508
ρ= 56.5781º

We get two possible solutions for ψ:

$$\psi_1 = |\omega - \rho| = 74.6806 - 56.5781 = 18.1025$$

$$\psi_2 = \omega + \rho = 74.6806 + 56.5781 = 131.2587$$

$$\sin L = \sin h_1 \sin d_1 + \cos h_1 \cos d_1 \cos \psi_1$$

Finally, we find the latitude L for ψ_1 is:

sin L_1= sin(37.2700)sin(-16.7350)+cos(37.2700)cos(-16.7350)cos(18.1025)
sin L_1 = 0.5500
L_1= 33.3665º= N33º 22.0’

For completeness, the second solution for the latitude is

sin L_2= sin(37.2700)sin(-16.7350)+cos(37.2700)cos(-16.7350)cos(131.2587)
sin L_2 = -0.6769
L_2= -42.6048º= S42º 36.3’