EES Ver. 10.835: #1867: For use by students and faculty, College of Engineering, University of Oklahoma, Stillwater, OK

## {Problem 6.77}

Qdot\_hot=15[kW] Wdot\_cycle=3.2[kW] T\_inside=22[C] T\_outside=-22[C]

{Energy Rate Balance Equation}
0=Qdot\_hot+Qdot\_cold-Wdot\_cycle
{Entropy Rate Balanace Equation}
0=Qdot\_hot/T\_inside+Qdot\_cold/T\_outside+sigmadot
{Sigma-dot: sigmadot = -1.218 kW/C}

{Because Sigma-dot is negative the manufactures claims are false}

**SOLUTION** 

Unit Settings: Eng F psia mass deg

 $Qdot_{cold} = -11.8 [kW]$ 

Tinside = 22 [C]

Qdothot = 15 [kW]

Toutside = -22 [C]

sigmadot = -1.218 [kW/C] Wdotcycle = 3.2 [kW]

No unit problems were detected.