



Attachment 0017

Thermal Management Data Sheets

04 November 2011

Distribution Statement A – Approved for Public Release; distribution unlimited

Attachment 0017 Thermal Management Data Sheet

Provide POCs for all data to ensure that model inputs are complete and usable. The following data must match the configuration of components and subsystems in the delivered CAD models.

1. Data for interior thermal management analysis, including GFE:
 - i. Complete system level geometry (unless already delivered in CDRL Data Item A053)
 - ii. Detailed CAD of cab interior (unless already delivered in CDRL Data Item A053)
 - iii. Component locations:
 1. Air vents
 2. Electronics requiring air cooling
 3. Any other components requiring air cooling
 - iv. Heat rejection rates
 1. Electronics requiring air cooling
 2. Other components requiring air cooling
 - v. Performance data
 1. HVAC
 - a. Cooling and heating capacity
 - b. Heat exchanger heat rejection rates
 - c. Refrigerant used
 - d. Cabin leakage curves
 - e. System resistance curves
 2. Condenser
 - a. Heat rejection map
 - b. Air side pressure drop vs. flow rate
 3. Evaporator
 - a. Heat rejection map
 - b. Air side pressure drop vs. flow rate
 4. Compressor
 - a. Pressure ratio vs. flow curves
 5. Blower
 - a. Pressure rise vs. air flow volume curve
 6. Fan
 - a. Pressure rise vs. air flow volume curve
 - b. Fan drive type (i.e., viscous, mechanical or electric motor)
 - c. Efficiency curves
 7. Air vents
 - a. At each outlet
 - i. Flow rate
 - ii. Temperature
2. Data for System level thermal management analysis:
 - i. Complete system level geometry (unless already delivered in CDRL Data Item A053)
 1. Engine compartment layout
 2. Heat exchanger placement
 3. Fan locations
 - ii. Performance data
 1. Heat exchangers
 - a. Pressure drop vs. flow
 - b. Heat transfer per ITD or effectiveness vs. hot and cold side flow

Attachment 0017 Thermal Management Data Sheet

- c. Heat rejection requirements
 - i. At each vehicle mobility point (e.g., 0.7 TE/WT., Top Speed) specified in system requirements
- 2. Fans
 - a. Cooling fan curves
 - i. Pressure rise vs. flow volume
 - b. Operating rpm
- 3. Engine rpm
- 4. Induction air flow rate
- 5. Exhaust temperature
 - a. At each mobility point specified in system requirements.