

Thermal Analysis of a simple thermal model for the capacity of the radiator area of a satellite

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The thermal analysis of a satellite in orbit is objected to determine radiator areas and heater sizes. The analysis for the worst hot condition is to determine the radiator area for rejecting a internal excessive heat to the outside and for the worst cold condition is to determine the heater size for keeping the temperature of unit boxes above the minimum allowable temperature limits. In the early stage of a satellite's design, a simple thermal model for a satellite's thermal analysis is developed first. This study is about the thermal analysis under the worst hot condition to confirm whether the radiator area is sufficient to keep the temperature under the maximum allowable temperature limits of unit boxes. The results of temperature are compared according to the several ratios of the radiator area of panel. These shows that only 50% radiator area of each panel would be sufficient to satisfy the temperature limit conditions.