

ABSTRACT OR SUPPORTING INFORMATION

Thermal Analysis and Design
of an Advanced Space Suit

Source of Acquisition
NASA Johnson Space Center

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ABSTRACT

The thermal dynamics and design of an Advanced Space Suit are considered. A transient model of the Advanced Space Suit has been developed and implemented using MATLAB/Simulink to help with sizing, with design evaluation, and with the development of an automatic thermal comfort control strategy. The model is described and the thermal characteristics of the Advanced Space suit are investigated including various parametric design studies. The steady state performance envelope for the Advanced Space Suit is defined in terms of the thermal environment and human metabolic rate and the transient response of the human-suit-MPLSS system is analyzed.