



## A Computational Methodology for Simulating Thermal Loss Testing of the Advanced Stirling Converter

By -

BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 24 pages. Dimensions: 9.7in. x 7.4in. x 0.1in. The U. S. Department of Energy (DOE) and Lockheed Martin Space Systems Company (LMSSC) have been developing the Advanced Stirling Radioisotope Generator (ASRG) for use as a power system for space science missions. This generator would use two high efficiency Advanced Stirling Convertors (ASCs), developed by Sunpower Inc. and NASA Glenn Research Center (GRC). The ASCs convert thermal energy from a radioisotope heat source into electricity. As part of ground testing of these ASCs, different operating conditions are used to simulate expected mission conditions. These conditions require achieving a particular operating frequency, hot end and cold end temperatures, and specified electrical power output for a given net heat input. In an effort to improve net heat input predictions, numerous tasks have been performed which provided a more accurate value for net heat input into the ASCs, including the use of multidimensional numerical models. Validation test hardware has also been used to provide a direct comparison of numerical results and validate the multi-dimensional numerical models used to predict convertor net heat input and efficiency. These validation tests were designed to simulate the temperature...



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