

INTENSIFICATION OF HEAT TRANSFER BETWEEN READOUT ELECTRONICS AND SINS OUTER FRAME USING HEAT PIPES

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Abstract

We have solved the problem of cooling the electronics of the strapdown inertial navigation system with the help of planar heat pipes. The developed design of the heat transfer panel from the heat pipe assembly is built into the navigation system and provides a thermal resistance value of tenth fractions °C/W. We have stated a quantitative relationship that makes it possible under conditions of accelerative g forces to define the maximum limiting power removed from the readout electronics to the housing. We have shown a possibility to realize a heat-removal device capable of operating under condition of short-duration accelerative g forces as much as up to 6g.