

## **ELECTRONIC COOLING OF GENERIC TRANSMITTER/RECEIVER MODULE ARRAY USING GRAPHITE FOAM AS MINI HEAT EXCHANGER.**

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The current technology demands continuous miniaturization of electronic components, which leads to higher power density. Because of this increased power density electronic components quickly heat up. Thus, in order to keep these electronic components within operating temperature range, proper heat dissipation from these components becomes very important issue. In the present study graphite foam is employed as a mini heat exchanger within the base plate cooling channel for a generic Transmitter/Receiver (T/R) module array. The T/R module array is investigated to determine the maximum power chip temperature operating under different ambient conditions, different thermal adhesives, and graphite foam configurations (the inline and the corrugated). The effective convective heat transfer coefficient values for the inline and the corrugated graphite foam are provided by Oak Ridge National Laboratory. The actual effective convective heat transfer coefficient for the present application is reverse engineered with the help of experimental data. For simulation purpose, a thermal management software – IcePak has been used.

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