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***Cryocooler with Novel Circulator
Providing Broad Area Cooling at 90K
for Spaceflight Applications***

***M. Petach, L. Amouzegar, Northrop Grumman AS, Redondo
Beach, CA***

This paper describes the conceptual design of a space flight cryocooler system for Broad Area Cooling of radiant shields and remote heat intercepts. This cooler system which provides cryogenic circulating gas sufficient to lift 150W of heat from a customer specified remote distributed load at 90 Kelvin. The cryocooler uses a novel design for the cryogenic gas circulation pump that utilize a thermal buffer tube (also known as a pulse tube) to thermally isolate the cryogenic gas loop from an ambient temperature linear flexure bearing compressor. The predicted performance characteristics of this cooler system are presented.