

CRYOCOOLER ELECTROMAGNETIC COMPATIBILITY

**D.L. Johnson, G.T. Smedley, G.R. Mon,
R.G. Ross, tilt. and P. Narvaez**

Jet Propulsion Laboratory
California Institute of Technology
Pasadena, California 91109

The Jet Propulsion Laboratory, under joint Ballistic Missile and Defense Organization (BMDO)/Air Force and NASA/10s Atmospheric Infrared Sounder (AIRS) sponsorship, is conducting extensive space cryocooler characterization to provide a reliable and accurate data base on cryocooler performance for use by the space community. As the number of cryocoolers taken through the characterization program increases it is possible to synthesize the test results, observing the similarities and differences among the coolers, to determine performance trends and base-line operating characteristics as well as performance attributes and design flaws with a particular cryocooler.

One of the important characteristics of the space cryocooler is the cryocooler's electromagnetic compatibility with the cooled imaging detector, payload instruments, and host spacecraft. Quantification of the cryocooler radiated magnetic and electric field emissions and the conducted emissions back onto the spacecraft bus are extremely important to determine the degree of shielding or filtering required to insure that the cryocooler electromagnetic signature does not cause malfunction or performance degradation to anything within the spacecraft.

This paper presents the 10M1 measurements made on various cryocoolers and their implications for successful mission operation on spacecraft.

Dean Johnson
Jet Propulsion Laboratory
MS 233-105
4800 Oak Grove Drive
Pasadena, CA 91109

Phone (818)354-1641
FAX (818)393-42.06

1' refer oral Session