

DEUTERIUM ARRAY MEMO #034

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
HAYSTACK OBSERVATORY
WESTFORD, MASSACHUSETTS 01886

June 30, 2003

Telephone: 978-692-4764
Fax: 781-981-0590

To: Deuterium Array Group

From: Alan E.E. Rogers

Subject: Tests of receiver box cooling

The following temperature measurements were recorded with a full receiver complement and 2 motherboards:

Room ambient Deg C	Motherboards	Air inside box	Configuration
24	35	25	Box cover removed
24	47	38	Top fans only
24	49	39	Box fan only on top
24	41	32	Top + bottom fan

Notes: 1] Box power consumption 390 W
2] Top fans 2 × Caravel 500 cfm each pwr 50 W each
3] Bottom fan Lakewood 20" box fan pwr 120 W
4] Bottom fan located about 8" below box

The temperature rise of 17 C (inside air-ambient) for both fans running is consistent with a heat transfer coefficient of approximately 11 watts/meter²/K. If the outside air temperature gets to 100° F (38°C) the mother boards will reach 55°C.