

Cooling Plan for ACD Integrated to Grid

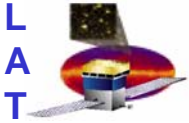
Ground Cooling Background/Problem

- The maximum TKR temperature is currently maintained below predicted orbit operating temperature (30C) with Grid Hex at 19C and without a light shield. The fairly tight fitting light shield causes a hot air region to be trapped at the +Z end of the TKR which results in the 30C limit to be exceeded.
- Planned light shield for 8 – 16 towers should not increase tracker temperatures above 30C since shield is vented which allows previously trapped hot air to escape.
- ACD does not allow trapped hot air to escape.

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Actions and Potential Solutions

- **Monitor thermocouples and thermistors already installed on +Z surface of Grid**
- **Install and monitor fly-away thermocouples on top of TKR towers.**
- **Lower Grid/Hex temperature below 19C; issues with humidity.**
 - No issue if $T(\text{Hex}) > 15\text{C}$
 - If $T(\text{Hex}) < 15\text{C}$, room temperature and humidity must be changed
- **Raise tracker maximum operating temperature (Acceptance Temperature is $42\text{C} < T < 45\text{C}$).**
- **Purge gap between ACD and top of trackers with dry air or N2 to flush out hot air layer.**

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