

JRDC Cambridge - second day

1. Summary of previous day's discussions & conclusions
Recommend WVR people seriously address the feasibility of a stand-alone Peltier-cooled load (~100K achievable)
2. Mailing lists now overlap ~80% - what to do?
Consensus - make one big list for now, possibly re-separate as things become firmer
3. Discussion of unresolved issues other than optics
Lamb: propose to convene a small design group for a few days and iron out implications of various design options - think about this during today's discussions.
Dewar is much larger than Lamb thought would be needed with an integrated rather than cartridge-oriented design - maybe 0.7m rather than 1.0m.
Belitsky: tried to push integrated approach earlier.
Discussion of pros & cons of cartridge system. Last chance to change.
Payne: see no reason to change previous decision.
Consensus: include all bands - 170mm diameters - and proceed.
Designers should review adequacy of size of cartridges.
Cryo OK except 4K thermal link ~~link~~ needs more work - alternative is flexible bolted links at 4K only.
4. Optics configuration
Lamb: introduction & review of previous discussions & presentations

- COFFEE BREAK -

Discussion of calibration report & further study.
Lamb: finding support for a small optics study group (Tucson? (month?))
Wade: need to make the task as definite as possible.
Carter: 2AM wake-up thoughts
Bands 7, 8, 9, 10: go in at $\pm 18^\circ$, two cold mirrors - first flat is close to on-axis (7 right on axis)
Bands 3, 4: 2 external mirrors, cold lens
Bands 5, 6: 2 " " , 2 cold mirrors
Bands 1, 2: big offset mirrors
Most optics can be attached to cartridges rather than to the antenna. Have a flat-topped dewar which requires reinforcement to minimize bowing.
Alignment is easier than present Carter design.

Lamb: list of optics issues to be weighed

- Sensitivity
 - losses
 - spillover
 - cooling at 4K / total cryogenic loads
- Efficiency
 - aberrations
 - focus
 - truncation
- ~~Also~~ Polarization
 - offset ellipsoids
 - off-axis feeds
 - circular/linear
- Moving parts
 - calibration load(s)
 - widgets
- Alignment
 - how easy
 - how stable
- Interfaces
- Reliability
- Production
 - reproducibility
 - cost
- Technical risk

need better specs

Who is focus group?

Carter, Lamb, D'Addario, Grammer, Ellison? TBD end of September 25-29
Some time within ~ month?

Expect each 10mW load at 4K raises temperature 0.05K.
Expect JT to be pumped to get 3.8K

— LUNCH BREAK —

Payne: list of objectives/issues/preferences/ground rules for focus group:
(presented by Wade)

- All optical elements on or in the dewar - optics goes with rx
 - everything testable in the lab $\Leftarrow$ accepted by group
 - If possible, optics inside dewar should be part of cartridge
 - makes cartridge fully testable in the lab $\Leftarrow$ Carter: skeptical
- Some discussion

Rejected: • Preference for all optics to be cold & on cartridge,
i.e. reduce warm optics as much as possible

- disagreement from Carter & Lazareff
- if optics is already on dewar, why do you care?
- don't know if alignment would be needed

Payne: would like to manufacture things, put them together,
put them on the antennae, and have things work.

Alternate: • Preference for no adjustments at the telescope

Composition of focus group? Involvement of cartridge designers?
Target: first week of October

Take risk of 4K thermal link not working well enough.

Can we do PDR in December? Discussion.
Try to avoid a PDR which has holes.

Target PDR in Tucson Feb 5-6, 2001.

One or more telecons last week of November to discuss
preparation for PDR - Payne/Wild to propose dates/times.

Discussion of what issues still need work before PDR - interfaces,
MAC, etc.

~~Wild~~ Wild: purpose of engineering model? objectives?
Check dewar, cryocooler, thermal link, etc.

When can we do CDR? End of 2001 is difficult with PDR in Feb.

Could take a chance and order pulse tube (6 mos. lead time!)
before PDR. Expensive.