

National Radio Astronomy Observatory
Tucson, Arizona
5 January 1987

MEMORANDUM

To: John Payne

From: Phil Jewell

PRJ

Subject: Miscellaneous

1. Gunn Phase Lock

After observing for several days last week and talking with the operators, I think there are several improvements that could be made to the Gunn phase lock system that would make it easier to use.

- a) The TUNE control needs a fine adjustment knob. Initial tuning can be very tedious because of the extreme sensitivity of the existing control.
- b) An ON/OFF switch for the TUNE and BACKSHORT servos might help preserve the phase lock. There is some evidence that the servos may be drifting, causing the phase lock to drop out.
- c) The SWEEP needs to be fixed -- this would help the tuning.

2. Standard Backend

Side-by-side comparisons of the sensitivity of the standard backend (SBE) and the digital backend (DBE) showed the DBE to be more sensitive. The DBE gave numbers of 5 - 6 Jy/sec in each channel of the 1 mm receiver while the SBE gave 6 - 11 Jy/sec with a median value of around 8 Jy/sec. The software is just about finished for the DBE and we plan to release it for general use later this month. There shouldn't be much reason for an observer to use the SBE after that, although we still need it to drive the chart recorders, of course. We know that the blanking on the SBE is not working correctly and there could be other problems. The question is, should we try to fix these problems or just let them go?

3. Digital Backend with the Bolometer

We are scheduled to test the bolometer on February 4 and if it looks good, an observing program (L211) starting on Feb. 9 would like to use it. As I understand it, the signal from the bolometer cannot be input to the DBE as it is. We should probably do something about that. We should give the bolometer its best chance to perform well, and I think we'll get the best sensitivities with the DBE.

4. 3 mm Schottky Receiver

The 3 mm Schottky receiver has a dead channel (for unknown reasons). We next use that receiver on February 15.