

NATIONAL RADIO ASTRONOMY OBSERVATORY  
Green Bank, West Virginia

MEMORANDUM

January 19, 1982

To: M. Balister  
From: C. Moore  
Subj: VLBA Proposal - Front-End System: VLB Array Memo No. 52

In light of recent developments, I have a few suggested changes to the front-end write-up.

- (1) In writing the appendix it becomes clear that cooled prime focus receivers at 327 and 610 MHz are a cost-effective approach -- 35% to 40% improvement in sensitivity at only 8% cost increase. I think we should think about this some more.
- (2) Since the local oscillator is included in the front-end cost, I think we should discuss it here in the write-up. By LO I mean the phase-lock oscillators or multipliers, not the H-maser frequency standard. If you have no objections, I will write a paragraph for insertion next to the noise/phase cal paragraph.
- (3) Since the block diagram has changed to eliminate the 610 MHz mixer, I think the cost headings under 300 K front-ends should read:

327 and 610 MHz GASFET's Dual Polarization .. 4 x 1 K  
 Weatherized Package ..... 2 x 0.5 K  
 Buffer Amplifiers ..... 4 x 0.25 K

Of course, if we elect to change to cooled receivers here, then a heading of "Dewar input lines, etc." would have to be added as well as changes to the cryogenic costs.

- (4) Table I should have the four temperature columns labeled as units of Kelvin. Also, antenna noise and system noise for .33 and .61 GHz should have a double asterisk (\*\*) notation: Exclusive of galactic noise.

CRM/cjd