

National Radio Astronomy Observatory

Socorro, New Mexico June 18, 1984

To: VLBA Electronics Group Members

VLBA Electronics Memo No. 16

From: A. R. Thompson

Subject: VLBA Electronics Group Meeting, June 14, 1984

Attendees: Balister, Bradley, Brundage, Campbell, Coe,
Dill, Hvatum, Mauzy, Porter, Thompson, Walker.

Front Ends

Harry Dill reported that the 8.4 GHz front end cooled to 13K in 11 hours with no power on the amplifiers (as of June 18 the latest result is 16K in 12 hours with power on). The new lower-mass polarizers expected in July should allow a decrease in cool-down time.

Mike Balister reported that tests of HEMTs from TRW by S. Weinreb look promising. At 23 GHz the gain is more than 10 dB per stage, and a two-stop amplifier had a noise temperature of 37K.

Local Oscillator

Bob Mauzy has made some preliminary tests of the HP sampling mixer using a 300 MHz comb as the local oscillator. The response varied by only a few dB over most of the 2-16 GHz range.

Electronics Construction Plan

More than half of the meeting was devoted to discussion of a tentative construction plan developed by Dick Thompson and Mike Balister. This indicates units to be built during each year by the various groups at Green Bank, Charlottesville, and the VLA. Some of the points made were as follows:

The Green Bank engineers and technicians should not be expected to spend more than 3/4 time on VLBA tasks because of commitments to Green Bank projects.

Some drafting will be required at Green Bank and possibly the VLA as well as at Charlottesville.

A second assembler is needed in the Charlottesville group.

More engineering time may be needed in the LO group.

Some of the front end construction may be more efficient if the schedule is adjusted so that all units for a particular frequency are built in a continuous sequence, rather than spread over 3 to 4 years. Small adjustments of the outfitting schedule to accommodate this can be permitted. Since the manpower required exceeds the figure in the current budget, optional construction items should be identified. However the status of such items will not be decided at least before the actual cost of the antenna contract is known.

The construction plan will be modified to take account of the above points and will probably be reviewed again at the next meeting.

Building at the Antenna Site

Two floor plans were discussed: one by S. Weinreb which was distributed by B. Perry (VLBA CC Memo #31) and one by L. R. D'Addario in a memorandum as yet unnumbered. The main questions raised were as follows:

Required size: SW plan shows 1296 sq. ft. and LRD plan 960 sq. ft.

Should the maser be in a separate room or should it be in the same room as the IF and LO electronics?

Should there be any exterior windows to the building?

A small electronics subgroup will meet to discuss these points and report conclusions to B. Perry.

ART/bt