

NATIONAL RADIO ASTRONOMY OBSERVATORY
Charlottesville, Virginia

June 19, 1985

TO: VLBA Electronics Group
FROM: Dick Thompson
SUBJECT: VLBA Construction for the Period 1985-6

During 1985 a contract will be let for construction of the first antenna, which will be ready for installation of initial electronics in January 1987. In preparation for this, a system test of the electronics will be started in August 1986. Thus procurement and construction of the initial electronics for the first antenna must be complete by August 1986. Similar systems for three more antennas to be constructed during 1986 must be obtained by the end of 1986. I use the term "initial electronics" to indicate (1) the A and B groups of front ends (0.33, 0.61, 1.5, 4.8 and 15 GHz bands); (2) the corresponding frequency converter modules; (3) the LO system including the hydrogen maser, two 2-16 GHz converter modules, the LO transmitter module and the LO receiver module; (4) racks, power supplies, cables, switching panels and cryogenic plumbing to bring the system into operation at the frequencies given above. Monitor and control interfaces are included in the front ends, 2-16 GHz synthesizers, LO transmitter module, and control units for the switching panels. The initial electronics does not include the 9.4 GHz fixed LO modules, or any of the optional items listed in the project book except the improved-accuracy subreflectors.

To enable us to monitor progress and identify any slipping of schedules it is necessary to specify dates for completion of various steps in the procurement and construction. I am therefore proposing the dates outlined below, which are listed separately for each group of the VLBA electronics division.

GREEN BANK FRONT END GROUP

1.5 GHz Front Ends

- #1 complete October 1, 1985
- #2 complete October 1, 1985
- #3 complete December 1, 1985
- #4 complete March 31, 1986

4.8 GHz Front Ends

- #1 start design August 1985
complete and tested December 31, 1985
- #2, 3, 4 complete December 31, 1986

GREEN BANK LOCAL OSCILLATOR GROUP

2-16 GHz Synthesizer Module

- #1 Breadboard tests complete June 20, 1985
Module without M/C interface August 31, 1985
Complete module with M/C interface September 30, 1985
- #2 Complete by December 31, 1985
6 more units constructed during 1986 (i.e. total of 8 by
December 31, 1986)

LO Tx and Rx Modules

- Start design August 1985
Prototype parts procured December 31, 1985
Complete and test prototype modules May 31, 1986
3 more units of each module constructed by December 31, 1986

CHARLOTTESVILLE CRYOGENIC FRONT END GROUP

10.7 GHz Front Ends

- #1 completed August 31, 1985
tested October 31, 1985

15 GHz Front Ends

- #1 complete March 1, 1986
tested April 1, 1986
- #2, 3, 4 complete and tested December 31, 1986

CHARLOTTESVILLE GENERAL ELECTRONICS GROUP

330/610 MHz Front Ends

- #1 All parts ordered July 30, 1985
Assembly complete October 15, 1985
Testing complete November 15, 1985
- #2, 3, 4 Order parts December 1, 1985
Complete assembly July 31, 1986

1.5 GHz Converter Module

All parts for prototype ordered July 15, 1985
Prototype unit completed September 30, 1985
Prototype unit tested October 31, 1985
Construct three more units by October 31, 1986

Converter Modules for 330 MHz, 610 MHz, 4.8 GHz, 10.7 GHz, 15 GHz

Order non-frequency-dependent components July 1, 1985
Order frequency-dependent components (mixer, LO amps) August 30, 1985
Construct and test all five prototype units by December 31, 1985
Construct three more units of each type (except 10.7 GHz) by October 31, 1986

Racks, Power Supplies

Order racks July 15, 1985
Order bins September 1, 1985
Order power supplies July 30, 1985
Start back-plane wiring and switching panels on first rack January 1, 1986
Complete back-plane wiring and switching panels on first rack March 30, 1986
Complete back-plane wiring and switching panels on three more racks October 31, 1986

Miscellaneous

Prepare plan for cables, cryogenic piping, etc. November 1 - December 31, 1985
Order materials and components for above January 1986