VLB ARRAY MEMO No. 583

VLBA Electronics Memo No. 84

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NATIONAL RADIO ASTRONOMY OBSERVATORY
Charlottesville, Virginia

December 5, 1986

To: VLBA Electronics Group

From: A. R. Thompson

Subject: VLBA Electronics Meeting, December 4, 1986

Attendees: Bagri, Balister, Beale, Bradley, Brundage, Dill, Napier, Norrod, Oty, Schlecht, Simon, Spaulding, Thompson, Walter, Wireman.

Proposed modifications to the electronics resulting from the systems tests at the VLA site are listed in VLBA Electronics Memo No. 83, and these were reviewed in some detail. Bill Wireman and Jim Oty will specify the size of the terminal strips adequate for the use of 8-gauge wire for the power supply runs between the racks, and discuss some remaining problems of ground connection of the AC and DC wiring. It was noted that it is highly desirable that the wiring of the Pie Town racks should be modified as necessary to match the later systems, to simplify the planning of additions or modifications in future years.

In the early years of operation of the VLBA it is expected that Mark II recording will be available so that VLBA antennas can be included in the existing network. Video cassette recorders are being purchased to provide the Mark II capability at VLBA antennas. Interfacing of these recorders was discussed, and subsequent to the meeting it was found that the Mark II formatter takes an analog baseband input signal. This signal is available at the BNC test points on the front panels of the Baseband Converter modules. The Mark II system also requires a 5 MHz waveform and 1 Hz timing pulses which are available from the C Rack.

An 86 GHz receiver for VLBA antenna testing is being assembled by John Payne at Tucson. It was pointed out that the baseband channels of the Baseband Converter modules could be used to provide a spectral line capability for SiO maser line observations. A Data Acquisition Rack provides a total of eight channels, each with minimum bandwidth 62.5 kHz.

In planning the purchasing of any large items, the possibility that we shall buy two antennas in 1987 must be allowed for. In that case the electronics budget will be tight, and we should buy only items that are definitely required for the 1987 build. This point was raised in a discussion of purchase of further CTI refrigerators. During 1987, three model 22 refrigerators and two model 350 refrigerators will be required for the Green Bank build, and five model 22 refrigerators, of which we now have three in hand, will be required for the Charlottesville build. Dick Thompson will be responsible for placing the order.

A modification to the model 22 refrigerator design to reduce sleeve wear is being developed at the VLA site. It was recommended that one such modified unit be installed in the Green Bank life-test system, and that this testing be continued for another year.

Roger Norrod inquired whether it was considered to be necessary to provide an O-ring seal in the short waveguide between the front ends and the feeds to allow for pressurization of the feed with dry nitrogen. Experience at the VLA indicates that the O-ring has not been found to be necessary, but it is regarded as a desirable addition, and is being included in the 4.8 GHz front end.