

National Radio Astronomy Observatory

MEMORANDUM

To: VLBA Project*Date:* July 26, 1988*From:* Craig Walker*Subject:* Test Coordination Meetings for May, June, and July, 1988

May 17, 1988. Those present: Crane, Rogers, Lillie, Walker, Clark, Bagri, Peck, Thompson, Napier, Stetten, Benson, Romney

Walker noted problems with setting clocks due to slow update of CLOCK screen. Clark thinks an adjustment of priorities will solve the problem.

Walker and Clark have noticed glitches in the elevation pointing. The servo system needs work.

There is still an intermittent problem in the VLBA formatter that seems related to the quality of the cage and the seating of connectors.

There is a resource crunch at Haystack that has made it difficult for them to provide Mark IIIa tapes for Pie Town. It was suggested that the VLBA buy 10-20 Fuji tapes (at \$200-300 each) for testing and observing. Haystack feels that they should support Pie Town tests but that this might cause some reduction of the number of experiments that can be processed.

Rogers is willing to look at Pie Town data on other's experiments for engineering purposes.

Bagri reported that broadband hot-cold load tests gave system temperatures that were generally consistent with expected values as given in the Project Book. Tsys measurements using narrow bands and using the advertized values of the noise sources tend to give somewhat higher values (10-15 percent) than the hot-cold load tests.

The phase cal system was discussed. The existing system will be tried on Pie Town. If something better is needed, something else will be done.

Remote operation was discussed. Napier feels that remote operations would be safe with the current system. However, reliability may be a problem. A variety of items are need for reliable operations.

The maser tests at JPL are going slowly. This is probably not serious since the masers are being delivered faster than they can be installed at the sites.

June 30, 1988. Those present: Stetten, Rhodes, Wade, Walker, Napier, Thompson, Schlecht, Benson, Crane, S. Koski, Campbell.

Napier noted that the dichroic reflector and ellipsoid for the S/X dual frequency observations have been installed at Pie Town and have been aligned optically. Pointing and losses need to be checked. Losses of about 5 to 10 percent are expected.

The 86 GHz system was tested on the range. The horn behaved the same as the horns for the other frequencies so any differences in performance will be due to the reflectors. The system will be mounted in about a month.

The major topic of the meeting was a discussion of Rhodes' VLBA Test Memo 18 on lessons from the NUG run. See that memo for the original points.

Clark suggests that we try to insure that double failures do not endanger the telescope but that we not worry about tripple problems. For example, he considers it safe to operate remotely without remote reboot of the station computer because it would take a computer crash, an acu failure, and a storm to endanger the antenna. For this reason he does not consider Rhodes' points 6 and 7 to belong under factors affecting safe remote operations. In any case, mechanisms for remote reboot are under study.

Point 5 (acu aborts) is a screen, not acu problem.

On reliable Mark II and Mark III operations:

Day numbers are ignored at the correlator so day jumps are not serious as long as the bookkeeping and tape labeling is in order. The Italian formatter and its interaction with the "blue boxes" needs to be checked out.

Software updates should not be done the day before a NUG run starts if possible. Time is needed to understand and learn how to get around the current bugs and glitches.

A CHECKER program is expected to be available for the next NUG run.

There will be a separate meeting on various clock problems in the control computer and the formatter.

There seems to be a long delay between the start of a scan and the start of the Mark III tape - up to 40 seconds. For tightly scheduled Mark III observations (common), this can cause loss of significant fractions of the data. Clark thinks that this is a problem with the compiler library and should be fixed in the July update.

On other topics:

It was noted during the last few months that the wheels seem to be slipping on the rails. Marks on the wheel and track lose their alignment over time. This applies to both drive and idler wheels. For drive wheels, it might be expected but why does it happen on idler wheels?

Several suggestions were made to increase security at the site. The combination on the front gate should be different from the ones on other doors - that one has to be given to too many other people such as the power company etc. The combinations should not be obvious numbers - at least one person so far has been able to guess the number with less than 5 minutes of tries. The tops of the gate posts should be made less friendly. It is easy to climb the fence at the posts at the moment. Finally, there should be a password on the computer.

July 19, 1988. Those present: Clark, Wade, Walker, Napier, Romney, Thompson, Schlecht, and Campbell.

Wade reported on the track situation. RSI is now done at Fort Davis. Low spots in the track were filled by welding and the track was ground flat. It is now within spec. Measurements at Los Alamos looked good. Sid Smith is urging RSI to grind the track in the shop before installation to make the job easier. At Kitt Peak, grinding will be needed. At Pie Town, the grout will have to be replaced. These measures should bring the errors to less than 0.01 inch deviation from a plane. This will contribute less than 5 arcseconds to the pointing error budget.

Romney noted that the second Italian Mark II formatter has arrived and has been shipped to the VLA. He urges us to get the first checked out soon. There is now an English manual for the formatter. Two copies were sent with the one sent to the VLA. We need to decide what to do about the buffers used to allow recording on many recorders.

There were inconclusive discussions about the S/X system, wheel slippage, and time setting.

The print quality of this document shows what has become of the only QMS printer on the VAX's at the VLA!