

VLBA ACQUISITION MEMO #298

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To: VLBA Data Acquisition Group
From: Alan E.E. Rogers
Subject: Plan for accelerated testing of thin tape

Introduction

The VLBA plans to procure approximately 1000 tapes in 1992. In order to ensure that this tape will satisfy the requirements of the VLBA and last for at least five years, we propose to accelerate the operational testing of thin tape.

Tape thickness

At present, we have about 110 (see VLBA Acquisition Memo #296) 16-micron tapes in the inventory, many of which have been successfully cycled through the sites and the correlator several times. We have insufficient experience with 13-micron tape to consider this thickness for a major purchase this year and hence it makes sense to consider only 16-micron tape for this purchase.

Tape reel

The only reel which prevents edge damage during shipping is the "self-packing" glass reel - see VLBA Acquisition Memo #280. While we have enough reels for our present thin tape inventory we need to test samples from Ampex to make sure that this new source is satisfactory. We also need to obtain a sample of the reel band to make sure it too is satisfactory.

Accelerated testing

a) Transport upgrades (see VLBA Acquisition Memo #295)

At present only Pie Town and Los Alamos have upgraded transports. We need to upgrade at least one transport at each of the remaining sites (excluding Hawaii) and the AOC.

b) Accelerated tests

Starting as soon as possible we should cycle tapes around between the AOC and/or Haystack and the sites in the following sequence:

- 1] Federal Express the tape to each VLBA site.
- 2] Shuttle tape at site at 320 IPS and 10" vacuum for 8 hours.
- 3] Run wind margin test at 15" and 67.5 IPS.
- 4] Shuttle tape back and forth at 160 IPS and 10" vacuum.
- 5] Ship tape via Federal Express to AOC or Haystack.
- 6] Run wind margin test.
- 7] Shuttle for 8 hours at 320 IPS 10" vacuum.
- 8] Return tape to site for another cycle.

It should be possible to complete one cycle per week to achieve an acceleration factor of about 8 so that 6 months of testing will be equivalent to about 4 years of regular operation.

This proposed accelerated testing is in addition to the interim operations of astronomy, geodesy and test experiments which will cycle most of the tapes through the correlator and site with much longer cycle period. We propose to continue the wind margin tests and edge photographs of these tapes.

Additional thin tapes

To augment the inventory and to better sample production tapes from Ampex we should procure another 20 tapes from Ampex as soon as possible.

Goals and Milestones

2 March 1992	Start accelerated tests to Pie Town, Los Alamos, Haystack, and the AOC.
11 March 1992	Complete assembly of upgrade kits.
12 March 1992	Give upgrade demo to personnel who will visit sites for upgrade.
15 March 1992	Issue a draft tape acceptance procedure.
23 March 1992	Complete mechanical upgrade of at least 1 transport at each site; add other sites to accelerated testing
23 March 1992	Place order for 20 tapes from Ampex.
23 March 1992	Order new reel band if Ampex cannot supply.
15 May 1992	Receive 20 more tapes from Ampex.
15 June 1992	Get industry comments back on acceptance procedures.
15 June 1992	Review thin tape performance, test results, etc. with outside advisors (B.Bhushan, E.Rabinowicz, if available).
15 June 1992	Receive new reel band.
15 July 1992	Complete tests on glass reel and band.
15 August 1992	Issue RFQ for tape purchase.
15 September 1992	Place an order for large quantity of tape.
15 November 1992	Start acceptance testing of a representative sample.
15 December 1992	Complete qualification of all tapes for VLBA use.