

VLBA ACQUISITION MEMO #373

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
HAYSTACK OBSERVATORY
WESTFORD, MASSACHUSETTS 01886

25 October 1993

Telephone: 508-692-4764

Fax: 617-981-0590

To: VLBA Data Acquisition Group

From: Alan E.E. Rogers

Subject: Recorder Telecon held 20 October 1993 at 1300 EDT

Attendees:	<u>AOC:</u>	<u>Haystack:</u>
	Bill Brundage	Hans Hinteregger
	Barry Clark	Alan Rogers
	Clint Janes	
	Jon Romney	
	Craig Walker	

1] Playback problems at the VLBA

Jon Romney reported that in addition to the problems of failing capacitors and unreliable inchworms (both of which are now being fixed) there are some playback drives which have "bad" tracks. The problem had not been very apparent before because the barrel-roll being used in the VLBA format spreads the losses over all the channels. At this time it is not clear whether the problem is really in the playback drive or in the interfaces to the correlator. "Loop-back" tests in which the bad track is connected to the "mini"-decoder in most cases (except one) shows the presence of decodable data. More tests are needed to isolate the problem (or problems?). On the tracks for which data is being accepted the parity error rates are low (1 or 2 byte errors per frame) and sync loss is about 20×10^{-6} . However, it is possible that the sync block is being corrupted by the D.C. bias particular bit pattern on some tracks. D.C. restoration, built into the VLBA reproduce electronics, is supposed to handle this problem but it may also be necessary to avoid auxiliary data patterns which have a high D.C. content.

2] Using thick and thin tape

Clint Janes reports that he plans to start supporting both thick and thin tape by changing the vacuum from 10" H₂O for thick to 7.2" for thin tape. Hans and Alan suggested that a wider range like 15 to 7.5 might be better if it can be accommodated between the low vacuum cut-out which sets the low end and the maximum vacuum motor speed which sets the high end. (If needed, the vacuum cut-out switch and motor speed limit potentiometer could be adjusted.)

3] "Triple cap" headstacks

Haystack is ordering a headstack from Metrum with a triple cap contour to evaluate the wear and high speed characteristics. In theory, the triple caps should have a reduced wear rate, better high speed performance, and less sensitivity to tape thickness.

At this time, Haystack has not yet heard from Technology Reinvestment Program (TRP) about the proposal for funds to develop new thin film head arrays. If funded, this could lead to the development of less expensive and more capable heads for the VLBA.