

NORTHEAST RADIO OBSERVATORY CORPORATION
HAYSTACK OBSERVATORY

VLBA Acquisition Memo. 004

14 December 1983

TO: VLBA Acquisition/Recorder Group

FROM: Alan E. E. Rogers

SUBJECT: Minutes of telecon held 13 Dec 83 at 1430 UT.

Present: Marty Ewing - Caltech
Ted Seling - Caltech
Hein Hvatum - NRAO
Ken Kellermann - NRAO
Larry D'Addario - NRAO
John Romney - NRAO
Craig Walker - NRAO
Ray Escoffier - NRAO
Rich Laoasse - NRAO
Buck Perry - NRAO
Alan Rogers - Haystack
Alan Whitney - Haystack
Joe Salah - Haystack

A) Issues raised by Ken Kellermann in his evaluation of Chapter V.

1) 4 heads VCR in 2 hour mode

Reducing the number of VCRs by using a 4 head machine is being pursued at NRAO. A jig has been made for mounting the heads and Ray hopes to evaluate the performance and cross talk.

2) HDR mode

Given budget constraints there is no need to consider a high data rate mode with more than 32 subchannels.

3) 32 vs 16 subchannels

Most VLBA requirements could be met with 16 8 MHz subchannels. Chapter V specifies 32 subchannels (16 upper and 16 lower sidebands) to allow a greater degree of flexibility, higher data rates for future expansion and compatibility with MK III mode A. Data recorded with 32 subchannels many require 2 pass processing. The consensus seemed to be we should retain 32 subchannels unless budgetary constraints force us to reduce this number to 16. Alan Rogers estimates

the cost of 32 subchannels to be approximately \$70,000 with 11 filter bandwidths per sideband and proportionately less for fewer bandwidths.

B) Filter bandwidths and sample rates

If processing wide bandwidth subchannels is expensive it has been suggested that we see if all scientific objectives can be met with subchannel bandwidths up to 8 MHz (I estimate this would save approx. \$25,000 in filters and \$170,000 in formatters). Craig Walker agreed to reexamine the question. However it was pointed out that VLA requirements might require subchannel sampling at 50 MHz.

C) VCR and Longitudinal recorder status

Longitudinal:

Hans is supervising the construction of 4 new headstacks. Several improvements have been made in the production techniques. John Webber has started environmental tests of the system using prototype narrow track heads.

VCR:

Ray has achieved an error rate of 5×10^{-3} at 12 Mbits/sec and hopes for further improvements with more circuit refinements and cleanup. Roger Cappallo will start working with Ray on microprocessor software needed to interface the VCR to the MK III processor at Haystack.