

NORTHEAST RADIO OBSERVATORY CORPORATION
HAYSTACK OBSERVATORY

VLBA Acquisition Memo No. 005

27 January 1984

Minutes of VLBA Recorder/acquisition group help 25 Jan 84 at 1400 EDT.

Attendees: Marty Ewing - Caltech
Ken Kellermann - NRAO
Hein Hvatum
John Romney
Larry D'Addario
Ray Escoffier
Mike Ballister
Sandy Weinreb
Rich Lacasse
Hans Hinteregger - Haystack
John Webber
Alan Rogers

Summary of technical progress

A] VCR's

Ray Escoffier reported that he has successfully remounted heads of the VCR scanner and should be able to make a 4 head VCR into a dual channel machine. The VCR performance at NRAO is still not matched Toronto's and Ray plans to visit Alan Yen's lab again soon. Roger Cappallo, who has been studying the VCR at Haystack, will accompany Ray.

B] Longitudinal at Haystack

1] Tracking tests

Tracking errors on one machine are extremely good $< 1 \mu\text{m}$ r.m.s., after a few minutes warm-up. The errors increase a little to about $\pm 2 \mu\text{m}$ at double speed. Intermachine tracking errors are $< 3 \mu\text{m}$ r.m.s. In light of this good tracking performance the guard bands might be reduced to $5 \mu\text{m}$ there by allowing 16 passes.

2] Error rates

Error rates are typically 10^{-6} increasing to 10^{-5} on intermachine tests. At 33,000 bpi a tracking error of 20 μm is needed before error rates exceed 10^{-4} . The performance at 50,000 bpi is quite acceptable and error rates are better than 10^{-5} .

3] Gapped bar supply

The gapped bar supply problem has been solved with the help of the Nobeyama group and Haystack has received a written agreement from Matsushita.

4] Longitudinal at JPL/Caltech

Marty Ewing reported that Barger continues work on building headstacks but has not yet delivered any complete units.

Recorder/Processor interface

Marty Ewing would like to see the following changes to the interface:

- 1) A reduction of the number of sub-channel inputs from 32 to 16.
- 2) That sub-channels be deskewed.
- 3) Recorder outputs be settable to the bit level relative to an external reference.

These changes are being considered by the Haystack group and will be discussed at the review meeting.