

VLBA ACQUISITION MEMO #287
MASSACHUSETTS INSTITUTE OF TECHNOLOGY
HAYSTACK OBSERVATORY
WESTFORD, MASSACHUSETTS 01886

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Telephone: 508-692-4764
Fax: 617-981-0590

To: VLBA Data Acquisition Group
From: Alan E.E. Rogers
Subject: Recorder Telecon held 9 October 1991 at 1300 EST

Attendees: Ken Stetten, Socorro
Bill Brundage, Socorro
Craig Walker, Socorro
George Peck, Socorro
Barry Clark, Socorro
Jon Romney, Charlottesville
Don Wells, Charlottesville
Alan Rogers, Haystack
Hans Hinteregger, Haystack

New Monitor Boards

Twenty-four new recorder monitor boards have been constructed and checkout is under way. Four boards will be sent to Bill Wireman in Charlottesville before the end of this month.

Barrel Roll at low sample rates

The barrel roll phase can be ambiguous at low sample rates for which the frame boundary is coincident with every other second. According to Jim Levine the barrel roll is reset during configure command and the ambiguity can be determined by interrogating the formatter to see on which second the configure completes. More practical, is a firmware change to ensure the configure completes on even-seconds or some other change to ensure that the barrel roll phase is zero on an even-second mark.

Playback transport monitoring

There was some discussion of the need to monitor and calibrate the playback recorders. It was generally agreed that vacuum level and head positions for which given passes are found might be logged. Error rates being carried along with the correlation data. AEER recommended that calibration checks might be made weekly using a correlator calibration tape.

Thin tape problem status

Work is continuing to find the best low friction, high heat conductivity, non-stick surface for the tape edge bearing. So far, the most promising surfaces are polished alumina and thick film diamond substrate. Copper works well, but wears too rapidly. Tungsten also works well and wears more slowly. While copper and tungsten might be useful for a quick fix, the long term solution is likely to be the use of diamond or alumina. The alumina is available in 3" squares and provision for their use is already made in the newer transports. The front door may have to be modified to

enable alumina plates to be mounted. If diamond turns out to be a much better choice, some further modifications will be needed to mount the smaller hard points.

Professor Rabinowicz of MIT, a pioneer in the field of tribology, came out on 8 October to see our problem first hand, review our progress, and make some suggestions. In general, I think, he feels we are going in the right direction. Perhaps his most important contribution so far is to put us in touch with David Smith of 3M, who has considerable experience with thin tapes and their difficulties.

We are expecting to meet with AMPLEX at their plant in Alabama for a technical exchange session.