

VLBA ACQUISITION MEMO #383

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To: VLBA Data Acquisition Group

From: Alan E.E. Rogers

Subject: Minutes of VLBA Recorder Telecon Held 17 August 1994

Attendees: AOC
George Peck
Ron Weimer
Haystack
Peter Bolis
Dave Fields
Alan Rogers

Tape speed

An absolute standard is needed for the tape speed. The bit rate upon playback at constant capstan rate will change with tape tension because the tape length is tension-dependent. For 16-micron D1K tape, with Young's modulus of 5 GPa, the effect is -100 ppm per inch of vacuum change in playback rate. An absolute standard can be made by recording a tape at standard tape tension and measured capstan diameter (with a pair of calipers) in the recorder control firmware. This standard tape could be circulated to other correlators (Haystack, Bonn, Washington) or several standard speed tapes (using small reels) could be made on one transport for distribution. Some tests of the correlation of measured speed changes with capstan diameter will be made to see if the capstan can be measured accurately enough for speed calibration.

Motor current return

Ron Weimer has performed tests at the AOC which show that noise from the reel motors is absent when an isolated power supply is used to run the motor. This observation suggests that the Metrum design allows some motor current to return through the deck plate. The Metrum design deficiency could be in the "Y" filter which returns one leg to the deck plate. Peter Bolis and David Fields will investigate the problem on the MkIV transports at Haystack.