

MASSACHUSETTS INSTITUTE OF TECHNOLOGY  
HAYSTACK OBSERVATORY  
WESTFORD, MASSACHUSETTS 01886

23 January 1986

Area Code 617  
692-4765

To: VLBA Data Acquisition/Recorder Group

From: Alan E.E.Rogers

Subject: Minutes of the Recorder/Data Acquisition Telecon held  
22 January 1986 at 1300 EST.

Attendees: Ray Escoffier - NRAO      John C. Webber - Haystack  
Ken Kellermann - NRAO      Bill Petrachenko - Haystack  
Larry D'Addario - NRAO      Joe Salah - Haystack  
Joe Greenberg - NRAO      Alan Rogers - Haystack  
Craig Walker - NRAO      Hans Hinteregger - Haystack

Fringe Rotation

The meeting started with a comment from Craig that the specifications for fringe rotation at the station requires an additional specification for phase noise. It was suggested that the addition should be as follows:

The Allan variance of the phase error in the rotation should be less than one third the maser Allan variance specification.

International VLBI Recording

The recent suggestion that the Soviets acquire Honeywell Model 96 transports and standard wide track headstacks (assuming export permission is granted) was discussed. It was pointed out that this proposal would result in VLBI tapes that are compatible with the VLBA processor — since it would be straightforward to equip some DPS transports with wide track headstacks in addition to narrow track headstacks. However, it would be much more desirable to have high density narrow track tapes which might be possible later if narrow track headstacks can be exported.

5 MHz and Station Timing Signals

The data acquisition and recorder electronics being prototyped at Haystack requires a frequency reference and a synchronization signal to be able to define a specific cycle of the frequency reference. 5 MHz and 1 pulse per second have been suggested as well as 5 MHz and 80 Hz. Much time has been taken debating the merits of various frequencies for the station timing signal. Hardware now under development assumes that the station timing be a signal distributed on a 50 ohm coax cable with the positive going transition within  $\pm 50$  nanoseconds of the positive going transition of 5 MHz. Risetime is assumed to be less than 50 nanoseconds and amplitude greater than one volt. Initial tests at Haystack will be made using the station 5 MHz and 1 pps signals. The designs should, however, also work with 80 Hz.