

NORTHEAST RADIO OBSERVATORY CORPORATION  
HAYSTACK OBSERVATORY

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TO: VLBA Recorder and Processor Groups

FROM: Haystack VLBI Group

SUBJECT: Some suggested changes and improvements to MK III which might be appropriate for the VLBA.

The MK III is a wideband VLBI data acquisition and recording system. While the MK III was developed primarily for geodetic application of VLBI it was also developed for astronomy. It would seem appropriate therefore to consider the MK III or an upgraded evolved MK III for the VLBA. To make the MK III even more suitable for astronomy (while preserving the features useful for astrometry and geodesy) and to meet the goals of the VLBA we suggest a number of changes.

## I.F. Distributor:

- 1) Allow 4 IF channels (Dual polarization for 2 - wavelengths)
- 2) Eliminate rear patch panel and bandpass preselection filters

## Video Converters:

- 1) Add 2-way I.F. input selector
- 2) Add low pass filters for 8 MHz
- 3) Add preselection filters<sup>+</sup> which switch with L.O. range

## Formatter:

- 1) Add sample rate 16 Mbits/sec
- 2) Eliminate mode switching
- 3) Add 4 channels to increase # channels from 28 to 32

## Decoder/Data buffer:

- 1) Increase max clock rate from 4.5 MHz to 18 MHz

## Recorder:

- 1) Add new ("channelizer" or "mode selector") to enable remote and/or dynamic assignment of sampled formatted data packets  
(one frame = one packet) from up to 32 video signals to tape recorder channels
- 2) Narrow track heads plus positioner - If recorder is Honeywell model 96

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<sup>+</sup> Presently in the I.F. distributor

