

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
HAYSTACK OBSERVATORY

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TO : Mark IV Development Group

FROM : Dan Smythe

SUBJECT : Increasing the band-width of the Mark IV preamplifier to 9 MHz

The frequency band-width of the Mark IV preamplifier is not adequate for good reproduce at 18 Mb/s. (See Mark IV Memo #103.) The band-width of the preamplifier can be doubled, at the expense of 6 dB of gain, by reducing the collector resistors in the gain stages (R4 & R10) from 3.3K to 1.6K. Since the Mark III correlator uses the same preamplifier circuit, the impact of this 6 dB reduction in gain was evaluated by changing this resistor on half the tracks on a Mark III Correlator analog read board and measuring error rates. Error rates on these tracks increased slightly, but not significantly. This modified board has been in use on the correlator for several weeks without a noticeable impact on performance. The next step is to modify the preamplifier on the Mark IV Development Recorder and optimize the design of the 320 ips equalizer.