

BIT ERROR RATE PERFORMANCE OF HIGH DENSITY TAPE RECORDERS FOR IMAGE PROCESSING



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The image processing facility at the NASA/Goddard Space Flight Center utilizes high density tape recorders (HDTR's) to transfer high volume image data and ancillary information from one system to another. For ancillary information it is mandatory that very low bit error rates accompany the transfers. The facility processes approximately 10^{11} bits of image data per day from many sensors, involving 15 independent processing systems that require the use of HDTR's. The original purchase of 16 HDTR's provided 2×10^{-7} bit error rate as specified. In order to improve the error rate NASA contracted the original supplier of the HDTR's to upgrade the recorders with error correction capability, and successfully achieved the 100 to 1 bit error rate improvement sought by NASA. This paper provides the requirements and conceptual approach to improving HDTR performance and discusses the general technique used to improve the bit error rate. Comparisons are made of actual performance of the HDTR's before and after the modification.