

Source : ETRI
Title : HDTV Video Coding using MPEG2-TM2
Purposr : Information

1. Introduction

The Test Model (TM) can be used to code several types of picture resolution format. The purpose of this document is to inform the performance of the TM2 for HDTV video coding. The simulation results are presented below.

2. Simulation Conditions

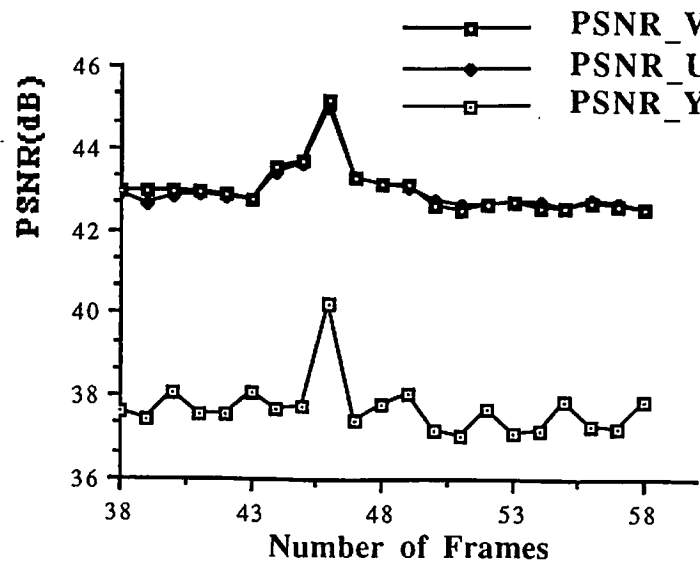
The simulation programs of Test Model 2 are based on AVC-323. The following settings for the algorithm were used:

- Picture format : 4 : 2 : 0
- Picture size : 1920x1024(Y), 960x512(Cr, Cb)
- Picture rate : 30 Hz
- GOP & Prediction : N = 15, M = 3 (Field/Frame)
- Motion vector search range : +/- 15
- Bit rate : 25Mbps, 35 Mbps
- Rate control : based on TM2

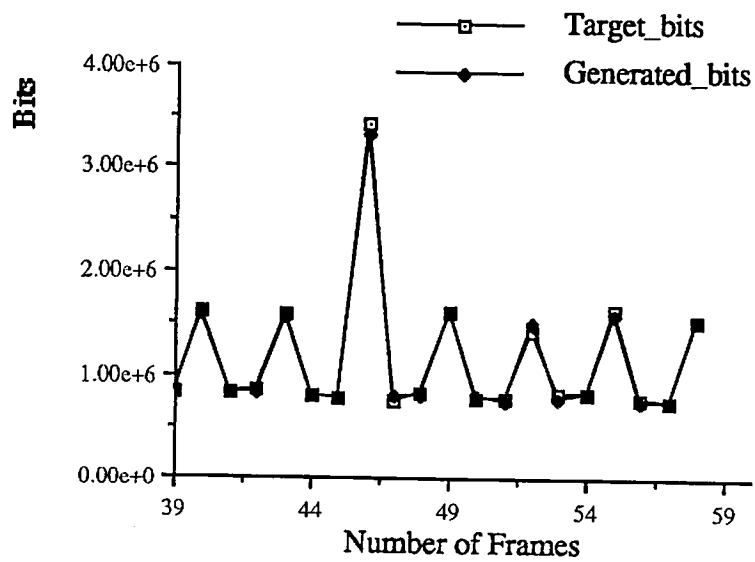
Simulation have been performed on "Fashion Show" and "Locomotive" whose duration times are 30 frames and 60 frames long, respectively. Both sequences are coded at 25 Mbps and 35 Mbps. The PSNRs and the number of bits per frame at 25Mbps and 35 Mbps are shown in Fig. 1 ~ 2.

3. Conclusions

Simulation results of TM2 of HDTV video coding are presented for the purpose of information. Some quality degradation could be observed in the "Fashion Show" sequence and granular noise appeared in the "Locomotive" sequence at 25 Mbps. At 35 Mbps, few artifact could be observed for both sequences. But in order to improve the color sharpness, some methods (like, use of 4 : 2 : 2 picture format) should be studied. And computer simulations using longer and variety of HDTV video sequences are necessary.

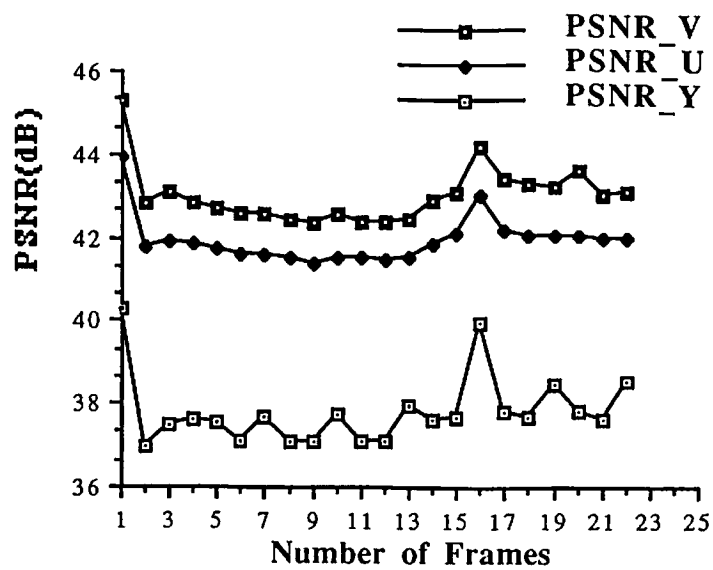


(a) PSNR Values

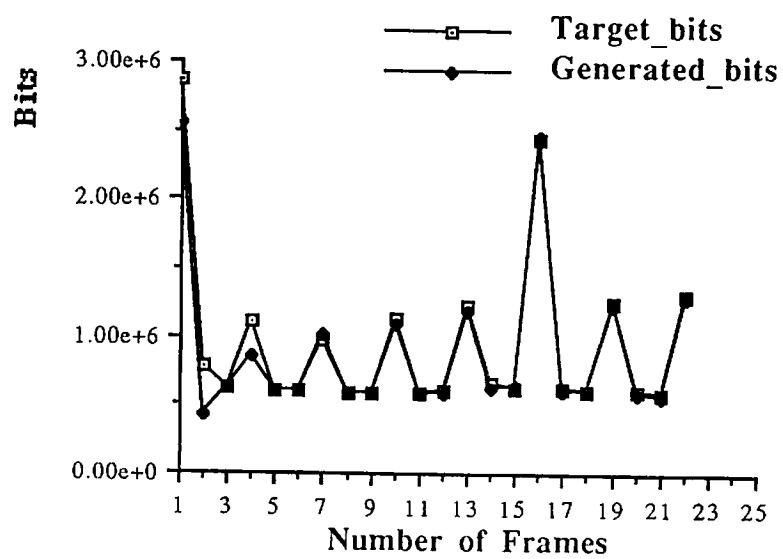


(b) Number of bits per frame

Fig. 2. Simulation results of coding "Locomotive" (35 Mbps)



(a) PSNR Values



(b) Number of bits per frame

Fig. 1. Simulation results of coding "Fashion Show" (25 Mbps)