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TITLE : Experiment of Refresh Interval Modification in nx384 kbit/s CODEC

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1. Introduction

In deciding the specification for IDCT mismatch, consideration must be given to the refresh interval and obtained picture quality. We therefore investigated the quality of the processed picture when the refresh interval was modified with flexible hardware.

* If IDCT mismatch is allowed for some reason or other, it is necessary to define the specification for refresh interval. From the viewpoint of propagation of mismatch errors, the effect is smaller the shorter the refresh interval, and so a wide tolerance can be adopted for the specification of IDCT. If the refresh interval is made smaller, however, intra-frame coding modes will be more frequently activated. In relative terms the coding efficiency falls, and there may well be a decline of picture quality especially at a coding rate of 384 kbit/s.

2. Experimental Procedure

Using the same characteristics for the quantizers, etc., as for the compatibility check, refresh was carried out by selecting forced intraframe coding for all blocks in GOB in unit of 1 GOB. The parameters of the quantizer are the same as those of previous and subsequent MC coded modes (in this experiment, parameters are controlled by defining them in frame units).

Concerning the experimental equipment, 1 GOB continuing from a previously processed part is refreshed every "i" fames. By specifying the value of "i" externally, the whole picture is therefore refreshed at the rate of once every 18 x i coded frames.

3. Experimental Results

Coded pictures from i = 5 - 11 when the parameters are modified, are displayed on the VTR.

It might be necessary to consider the relationship with coding mode control, but at least in this experimental system, there was no perceptible degradation of picture quality even with i = 5 (one refresh every 90 coded frames). We think that if refresh is carried out every 120 coded frames or so (corresponding to i = 7 in this experiment), which is now being considered in connection with IDCT mismatch parameters, there will be no problems as to picture quality when the system is operated at 384 kbit/s.

4. Conclusion

It was found using flexible hardware that when coding was performed with modification of the refresh interval, there is no perceptable degradation of picture quality in the case of no mismatch, if the refresh interval is specified to be at greater than 90 coded frames.