CCITT SG XV
Working Party XV/1
Specialist Group on Coding for Visual Telephony

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Title : EXPERIMENTS ON DISCARDING THE HIGHER PART OF TRANSFORM COEFFICIENTS AND VARIABLE BLOCK SIZE PROCESSING

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1. Introduction

Using the flexible hardware, transmission coefficient range discarding and the variable block size processing were performed.

2. Experiments

[1] Discarding the higher part of transform coefficients

The following comparison was made:

(1) Method including the transmission coefficient range discard described in Doc. #190. In the experiment, the parameters were set to transmit coefficients only within a rectangular zone including coefficients of which values are 1.5 or more times the dead zone of the quantizer.

(2) The above processing was not carried out.

[2] Variable block size processing results

The following comparison was made:

(1) Method including variable block size processing shown in Doc. #191.

(2) The above processing was not carried out.

All the above experiments [1] - [2] were carried out in the feedback control mode.

3. Results

The results of coding processing will be displayed at the meeting. They may be summarized as follows:

[1] Transmission coefficient range discard

There was less mosquito noise with cut-off processing than without. It seems that this was due to the selection of a quantizer with relatively small step size by controlling the amount of generated data.

Some loss of spatial resolution had been expected by cutting off the range of transmission coefficients, however none was observed in the experiment in the case of either still or moving pictures. For still pictures, discarding process even tended to make some characters easier to read due to the reduction of mosquito noise mentioned above.

[2] Variable block size processing results

There appeared to be less block distortion with variable block size processing than without. In the test pictures, an improvement was found in the rendition of the conferece table, blue jacket of the participants and background. And also background distortion after movement of objects are reduced.

It was also confirmed that mosquito noise occurred over a smaller range and that there was less distortion caused by the mosquito noise with variable block size processing. However, it should be noted that in this experiment, there was not such a great deal of difference between the two as the transmission range discarding process shown in [1] was already included.