CCITT SGXV
Working Party XV/1
Specialists Group on Coding
for Visual Telephony

Document n° 429

Orlando , December 6-9 , 1988

Title : Comments on Variable Thresholding

Source : FRANCE (CNET)

The Variable Thresholding technique as depicted in Doc 392 has been more studied at CNET labs. From our analysis , it appears that :

- In many cases , the technique consists in discarding medium and high frequency coefficients. Of course , if high frequency coefficients are present with sufficient values , they are encoded.

- The discarded coefficients of the current frame are very often coded at the following frame.

- A certain number of discarded coefficients whose value is ±1 are never encoded : they are no present anymore in the following frames. It seems that they stem from additional noise which can be either :
  * input noise
  * quantization noise
  * DCT noise

CSELT did similar work and came to similar conclusions.

Several attempts to improve the technique have shown that :

- There is little improvement when applying twice the process :
  * First time as in RM6.
  * Second time starting from the last non-zeroe coefficient and stopping two coefficients before the DC component.

- There is little improvement when adapting the quantizer to the threshold. However , as this improvement is not very significant , it is not suggested to adopt it because it implies to modify the standard.

- There is a loss of effectiveness when the threshold is maintained at 1.5*g after an encoded coefficient.