SOURCE: CSELT, FRANCE, BT

TITLE: CONSIDERATIONS ON THE RELATIONSHIP BETWEEN LUMINANCE
AND CHROMINANCE BLOCK SIZE

Most simulation results shown to date have used the same block size (number of pixels in the two directions) for coding both the luminance and the chrominance components. This gives rise to a physical block size which is at least twice in the horizontal direction or also in the vertical direction if vertical subsampling is used.

A common impairment encountered in some scenes with a high amount of motion is a blocking effect on the chrominance components more visible because of the larger block size.

A possible alternative would be a choice of the physical chrominance component block size equal to the physical luminance block size.

Here follows a list of pros and cons of the two choices:

1. Same block size for luminance and chrominance

   Pro: The same hardware transformer can be used
   Con: Blocking effect on chrominance

2. Same physical block size for luminance and chrominance

   Pro: Lesser blocking effect
   Con: A duplication of transformers is required, although it can be shown that the DCT(N/2) coefficients can be obtained from the DCT(N) coefficients at the expense of some additional computations.

On balance option 1 is preferred (same number of pels in each luminance and chrominance block):Recent simulation results have shown that the blocking effect on chrominance can be reduced to a perceptually acceptable level.