

CCITT SGXV
Working party XV/1
Experts Group for ATM Video Coding
(Rapporteur's Group on part of Q.3/XV)

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SOURCE : Telia Research AB, SWEDEN
TITLE : Spatial scalability, interlaced to interlaced frame based
PURPOSE : Information

Simulations

Simulations have been performed to support interlaced to interlaced scalable coding. CCIR 601 input images were downsampled to interlaced SIF using the spatial filters described in TM3. The downsampled images were coded using frame structured TM3, N=12, M=3, at a bitrate of 1.5 Mbit/s.

The image was upsampled to 420 and the spatio-temporal weighting technique was used to obtain a prediction for the upper layer, which was coded using TM3 and the remaining 2.5 Mbit/s. Again a simple spatial filter was used for the upconversion. On intra picture a purely compatible prediction was used.

Different weighting factors were tested.

The rate control of TM3 was used on both levels separately.

Simulation results

N=12, M=3	Mobcal (22 frames) SNR Y	Flowerg (34 frames) SNR Y
lower layer (SIF), (1.5 Mbit / s)	29.68 dB	28.13 dB
upsampled prediction, (1.5 Mbit / s)	21.29 dB	21.93 dB
upper layer (1.5 + 2.5 Mbit / s)	26.14 dB	26.73 dB

Conclusion

Although different weighting factors were tested, up to 3 bits per macro block (8 different weighting factors), the best results were obtained with $w_1=0.25$ and $w_2=0.25$. A purely compatible prediction was hardly ever chosen.

This underlines the fact that simple spatial filters are not useful for this kind of schemes. Further investigation of filters is needed.