ITU - Telecommunications Standardization Sector
STUDY GROUP 16
Video Coding Experts Group (Question 15)

Document Q15-J-27
Filename: q15j27.doc
Generated: 5 May '00

Tenth meeting: Osaka, 16-18 May, 2000

Question: Q.15/SG16

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Title: Deblocking filter for 4x4 based coding

Purpose: Proposal

1 Introduction

The deblocking filter of H.263 seems to be attractive due to its combination of low complexity and coding performance. On the other hand, there are more complex filters that provide better performance. One example is the deblocking filter in the Nokia proposal. Some of the characteristics of the Nokia filter compared to the one in H.263:

- A more detailed analysis of pixel values are performed before filtering
- Longer filters (3,5,7 taps) are used for smoother result
- Due to more powerful in-loop filter there seems to be less need for postfiltering

Hence a deblocking filter suitable for 4x4 structure was designed with an aim of better subjective as well as objective performance compared to the deblocking filter of H.263.

2 The experiment

The complete filter description is given in q15j28.doc section 4.5. Similar to the Nokia filter it uses longer filter (effectively up to 5 taps). Due to the smaller blocksize this seems to be sufficient. It also does separate analysis of pixel values on both sides of the boundary for better performance. RD plots are given in q15j27.xls showing that the declocking filter gives objective gain compared to TML (which have a simpler deblocking filter for intra frames and no filtering for inter frames). Subjective comparisons with TML-2 will also be given.

3 Conclusions

This deblocking filter shows an objective coding gain of (0.2-0.4) dB for most of the test sequences. More important is the subjective improvement. Comparisons between the new declocking filter and TML-2 with postfilter will be demonstrated.

It is proposed that this – or a similar – deblocking filter is included in the test model.

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