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Title: Missing information and Inconsistencies in TM5, MPEG2 Working Draft
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Purpose: Clarification

I. Introduction

This document brings out some of the inconsistencies and missing information in TM5 and the MPEG-2 Working Draft for the main-profile. Issues related to the Spatial Scalability are provided in Section II, and issues related to the Main Level of Main Profile are provided in Section III.

II. Spatial Scalability

In spatial scalability, the VLC Table B.2c3 for B-Pictures on pg 60, TM 5, Draft 2, two macroblock types are missing, as highlighted by Table 1 below.

In Intra-coded pictures, compatible MBs with macroblock_quant are more probable than pure Intra blocks (macroblock_intra = 1). To take this into account, change the VLC Table B.2a3 of TM5 to Table 2 below.

Other issues regarding spatial scalability are:

1. If we have pure compatibility for field 1 and weighted compatibility for field 2, why should we send motion vectors for field 1? This question is relevant only for field motion compensation.
2. Why don't we have skipped compatible MBs in P pictures?
3. The scale factor (divisor) given for the vertical upsampling filter in Table G.2.1 of TM5 should be changed to 32. Similarly, the divisor given for the horizontal interpolation filter in Table G.3b of TM5 should be changed to 2.

III. Main Profile Main Level

1. Default non-intra quantizer is the MPEG1 uniform quantizer. Is MPEG2 supposed to use the TCE quantizer by default?

Table 1: Missing VLC Codes for macroblock_type in spatially scalable coding of bidirectionally predictive_coded pictures (B-pictures)

VLC Code	macroblock_ quant	macroblock_ motion_ forward	macroblock_ motion_ backward	macroblock_ pattern	macroblock_ intra	macroblock_ compatible
??	0	0	0	1	0	1
??	1	0	0	1	0	1

Table 2: Suggested variable length codes for macroblock_type in intra-coded pictures (I-pictures)

VLC Code	macroblock_ quant	macroblock_ motion_ forward	macroblock_ motion_ backward	macroblock_ pattern	macroblock_ intra	macroblock_ compatible
1	0	0	0	1	0	1
01	1	0	0	1	0	1
001	1	0	0	0	1	0
00011	0	0	0	0	1	0
00010	0	0	0	0	0	1

2. Isn't a mismatch introduced when an MPEG1 stream is decoded by an MPEG2 decoder using the new oddification rules? The MPEG1 encoder expected the MPEG1 oddification algorithm.

3. If a skipped macroblock follows a dual prime macroblock in a B picture (not part of the main profile), how is the skipped macroblock reconstructed? Does the (dmvx, dmvy) need to be saved? Is zero assumed?

4. There are unassigned codes in the alternate intra VLC. They are:
   0000 0001 1101 s Formerly run=0, level=8
   0000 0001 1000 s Formerly run=0, level=9
   0000 0001 0011 s Formerly run=0, level=10
   0000 0001 0000 s Formerly run=0, level=11
   0000 0001 1011 s Formerly run=1, level=5
   0000 0001 0100 s Formerly run=2, level=4
   0000 0000 1101 0s Formerly run=0, level=12
   0000 0000 1100 1s Formerly run=0, level=13
   0000 0000 1100 0s Formerly run=0, level=14
   0000 0000 1011 1s Formerly run=0, level=15

5. When a ML@MP decoder encounters an extension id that it does not understand, what will be its effect? One would hope that the decoder would simply scan the bitstream to the next startcode and resume decoding from there.