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AMENDMENT 2
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Information technology — High efficiency coding and media delivery in heterogeneous environments —

Part 2: High efficiency video coding

AMENDMENT 2: Main 10 still picture profile

Technologies de l'information — Codage à haute efficacité et livraison des médias dans des environnements hétérogènes —

Partie 2: Codage vidéo à haute efficacité

AMENDEMENT 2: Profil main 10 pour image fixe

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A list of all parts in the ISO/IEC 23008 series can be found on the ISO website.

Information technology — High efficiency coding and media delivery in heterogeneous environments —

Part 2:
High efficiency video coding

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Clause 3

Replace 3.56 with the following:

3.56

frequency index

one-dimensional or two-dimensional index associated with a *transform coefficient* prior to the application of a *transform* in the *decoding process*

Delete 3.70, and renumber the current 3.71 through 3.164 as 3.70 through 3.163.

Add the following as 3.164:

3.164

transform

part of the *decoding process* by which a *block* of *transform coefficients* is converted to a *block* of spatial-domain values

Replace 3.165 with the following:

3.165

transform block

rectangular MxN *block* of samples resulting from the same *transform* in the *decoding process*

Replace 3.166 with the following:

3.166

transform coefficient

scalar quantity, considered to be in a frequency domain that is associated with a particular one-dimensional or two-dimensional *frequency index* in a *transform* in the *decoding process*

Clause 7

Replace 7.3.3 with the following:

7.3.3 Profile, tier and level syntax

profile_tier_level(profilePresentFlag, maxNumSubLayersMinus1) {	**Descriptor**
if(profilePresentFlag) {	
general_profile_space	u(2)
general_tier_flag	u(1)
general_profile_idc	u(5)
for(j = 0; j < 32; j++)	
general_profile_compatibility_flag[j]	u(1)
general_progressive_source_flag	u(1)
general_interlaced_source_flag	u(1)
general_non_packed_constraint_flag	u(1)
general_frame_only_constraint_flag	u(1)

if(general_profile_idc == 4 | | general_profile_compatibility_flag[4] | |
general_profile_idc == 5 | | general_profile_compatibility_flag[5] | |
general_profile_idc == 6 | | general_profile_compatibility_flag[6] | |
general_profile_idc == 7 | | general_profile_compatibility_flag[7] | |
general_profile_idc == 8 | | general_profile_compatibility_flag[8] | |
general_profile_idc == 9 | | general_profile_compatibility_flag[9] | |
general_profile_idc == 10 | | general_profile_compatibility_flag[10]) {
/* The number of bits in this syntax structure is not affected by this condition */	

general_max_12bit_constraint_flag	u(1)
general_max_10bit_constraint_flag	u(1)
general_max_8bit_constraint_flag	u(1)
general_max_422chroma_constraint_flag	u(1)
general_max_420chroma_constraint_flag	u(1)
general_max_monochrome_constraint_flag	u(1)
general_intra_constraint_flag	u(1)
general_one_picture_only_constraint_flag	u(1)
general_lower_bit_rate_constraint_flag	u(1)

if(general_profile_idc == 5 | | general_profile_compatibility_flag[5] | |
general_profile_idc == 9 | | general_profile_compatibility_flag[9] | |
general_profile_idc == 10 | | general_profile_compatibility_flag[10]) {	

general_max_14bit_constraint_flag	u(1)
general_reserved_zero_33bits	u(33)
} else	
general_reserved_zero_34bits	u(34)
} else if(general_profile_idc == 2 | | general_profile_compatibility_flag[2]) {	
general_reserved_zero_7bits	u(7)
general_one_picture_only_constraint_flag	u(1)
general_reserved_zero_35bits	u(35)
} else	
general_reserved_zero_43bits	u(43)

if((general_profile_idc >= 1 && general_profile_idc <= 5) || general_profile_idc == 9 || general_profile_compatibility_flag[1] || general_profile_compatibility_flag[2] || general_profile_compatibility_flag[3] || general_profile_compatibility_flag[4] || general_profile_compatibility_flag[5] || general_profile_compatibility_flag[9]) /* The number of bits in this syntax structure is not affected by this condition */	
general_inbld_flag	u(1)
else	
general_reserved_zero_bit	u(1)
}	
general_level_idc	u(8)
for(i = 0; i < maxNumSubLayersMinus1; i++) {	
sub_layer_profile_present_flag[i]	u(1)
sub_layer_level_present_flag[i]	u(1)
}	
if(maxNumSubLayersMinus1 > 0)	
for(i = maxNumSubLayersMinus1; i < 8; i++)	
reserved_zero_2bits[i]	u(2)
for(i = 0; i < maxNumSubLayersMinus1; i++) {	
if(sub_layer_profile_present_flag[i]) {	
sub_layer_profile_space[i]	u(2)
sub_layer_tier_flag[i]	u(1)
sub_layer_profile_idc[i]	u(5)
for(j = 0; j < 32; j++)	
sub_layer_profile_compatibility_flag[i][j]	u(1)
sub_layer_progressive_source_flag[i]	u(1)
sub_layer_interlaced_source_flag[i]	u(1)
sub_layer_non_packed_constraint_flag[i]	u(1)
sub_layer_frame_only_constraint_flag[i]	u(1)
if(sub_layer_profile_idc[i] == 4 || sub_layer_profile_compatibility_flag[i][4] || sub_layer_profile_idc[i] == 5 || sub_layer_profile_compatibility_flag[i][5] || sub_layer_profile_idc[i] == 6 || sub_layer_profile_compatibility_flag[i][6] || sub_layer_profile_idc[i] == 7 || sub_layer_profile_compatibility_flag[i][7] || sub_layer_profile_idc[i] == 8 || sub_layer_profile_compatibility_flag[i][8] || sub_layer_profile_idc[i] == 9 || sub_layer_profile_compatibility_flag[i][9] || sub_layer_profile_idc[i] == 10 || sub_layer_profile_compatibility_flag[i][10]) { /* The number of bits in this syntax structure is not affected by this condition */	
sub_layer_max_12bit_constraint_flag[i]	u(1)
sub_layer_max_10bit_constraint_flag[i]	u(1)
sub_layer_max_8bit_constraint_flag[i]	u(1)
sub_layer_max_422chroma_constraint_flag[i]	u(1)
sub_layer_max_420chroma_constraint_flag[i]	u(1)
sub_layer_max_monochrome_constraint_flag[i]	u(1)
sub_layer_intra_constraint_flag[i]	u(1)
sub_layer_one_picture_only_constraint_flag[i]	u(1)
sub_layer_lower_bit_rate_constraint_flag[i]	u(1)
if(sub_layer_profile_idc[i] == 5 || sub_layer_profile_compatibility_flag[i][5]) {	

sub_layer_max_14bit_constraint_flag[i]	u(1)
sub_layer_reserved_zero_33bits[i]	u(33)
} else	
sub_layer_reserved_zero_34bits[i]	u(34)
} else if(sub_layer_profile_idc[i] == 2 | | sub_layer_profile_compatibility_flag[i][2]) {	
sub_layer_reserved_zero_7bits[i]	u(7)
sub_layer_one_picture_only_constraint_flag[i]	u(1)
sub_layer_reserved_zero_35bits[i]	u(35)
} else	
sub_layer_reserved_zero_43bits[i]	u(43)
if((sub_layer_profile_idc[i] >= 1 && sub_layer_profile_idc[i] <= 5) | | sub_layer_profile_idc[i] == 9 | | sub_layer_profile_compatibility_flag[1] | | sub_layer_profile_compatibility_flag[2] | | sub_layer_profile_compatibility_flag[3] | | sub_layer_profile_compatibility_flag[4] | | sub_layer_profile_compatibility_flag[5] | | sub_layer_profile_compatibility_flag[9]) /* The number of bits in this syntax structure is not affected by this condition */	
sub_layer_inbld_flag[i]	u(1)
else	
sub_layer_reserved_zero_bit[i]	u(1)
}	
if(sub_layer_level_present_flag[i])	
sub_layer_level_idc[i]	u(8)
}	
}	

In 7.4.4, delete the two sentences:

"When profilePresentFlag is equal to 1 and one or more of these syntax elements are not present, their values are inferred to be equal to 0. When general_profile_idc is not equal to 10 and is not in the range of 4 to 7, inclusive, and general_profile_compatibility_flag[10] is not equal to 1 and general_profile_compatibility_flag[j] is not equal to 1 for any value of j in the range of 4 to 7, inclusive, the value of each of these syntax elements shall be equal to 0."

In 7.4.4, after the semantics of general_reserved_zero_34bits, add the following:

general_reserved_zero_7bits, when present, shall be equal to 0 in bitstreams conforming to this version of this Specification. Other values for general_reserved_zero_7bits are reserved for future use by ITU-T | ISO/IEC. Decoders shall ignore the value of general_reserved_zero_7bits.

general_reserved_zero_35bits, when present, shall be equal to 0 in bitstreams conforming to this version of this Specification. Other values for general_reserved_zero_35bits are reserved for future use by ITU-T | ISO/IEC. Decoders shall ignore the value of general_reserved_zero_35bits.

In 7.4.4, replace the paragraph specifying the semantics of sub_layer_profile_space[i], sub_layer_tier_flag[i], sub_layer_profile_idc[i], etc., with the following:

The semantics of the syntax elements **sub_layer_profile_space**[i], **sub_layer_tier_flag**[i], **sub_layer_profile_idc**[i], **sub_layer_profile_compatibility_flag**[i][j], **sub_layer_progressive_source_flag**[i], **sub_layer_interlaced_source_flag**[i], **sub_layer_non_packed_constraint_flag**[i], **sub_layer_frame_only_constraint_flag**[i], **sub_layer_max_12bit_constraint_flag**[i], **sub_layer_max_10bit_constraint_flag**[i], **sub_layer_max_8bit_constraint_flag**[i], **sub_layer_max_422chroma_constraint_flag**[i], **sub_layer_max_420chroma_constraint_flag**[i], **sub_layer_max_monochrome_constraint_flag**[i], **sub_layer_intra_constraint_flag**[i], **sub_layer_one_picture_only_constraint_flag**[i], **sub_layer_lower_bit_rate_constraint_flag**[i], **sub_layer_max_14bit_constraint_flag**, **sub_layer_reserved_zero_33bits**[i], **sub_layer_reserved_zero_34bits**[i], **sub_layer_reserved_zero_7bits**[i], **sub_layer_reserved_zero_35bits**[i], **sub_layer_reserved_zero_43bits**[i], **sub_layer_inbld_flag**[i], **sub_layer_reserved_zero_bit**[i], and **sub_layer_level_idc**[i] are, apart from the specification of the inference of not present values, the same as the syntax elements general_profile_space, general_tier_flag, general_profile_idc, general_profile_compatibility_flag[j], general_progressive_source_flag, general_interlaced_source_flag, general_non_packed_constraint_flag, general_frame_only_constraint_flag, general_max_12bit_constraint_flag, general_max_10bit_constraint_flag, general_max_8bit_constraint_flag, general_max_422chroma_constraint_flag, general_max_420chroma_constraint_flag, general_max_monochrome_constraint_flag, general_intra_constraint_flag, general_one_picture_only_constraint_flag, general_lower_bit_rate_constraint_flag, general_max_14bit_constraint_flag, general_reserved_zero_33bits, general_reserved_zero_34bits, **general_reserved_zero_7bits, general_reserved_zero_35bits**, general_reserved_zero_43bits, general_inbld_flag, general_reserved_zero_bit, and general_level_idc, respectively, but apply to the sub-layer representation with TemporalId equal to i.

In 7.4.3.2.2, replace the paragraph specifying the semantics of the extended_precision_processing_flag syntax element with the following:

extended_precision_processing_flag equal to 1 specifies that an extended dynamic range is used for transform coefficients and transform processing. extended_precision_processing_flag equal to 0 specifies that the extended dynamic range is not used. When not present, the value of extended_precision_processing_flag is inferred to be equal to 0.

In 7.4.2.2, replace NOTE 1 with the following:

NOTE 1 NAL unit types in the range of UNSPEC48..UNSPEC63 can be used as determined by the application. No decoding process for these values of nal_unit_type is specified in this Specification. Since different applications might use these NAL unit types for different purposes, it is expected that particular care would be exercised in the design of encoders that generate NAL units with these nal_unit_type values, and in the design of decoders that interpret the content of NAL units with these nal_unit_type values. This specification does not define any management for these values. These nal_unit_type values might only be suitable for use in contexts in which "collisions" of usage (i.e. different definitions of the meaning of the NAL unit content for the same nal_unit_type value) are unimportant, or not possible, or are managed – e.g. defined or managed in the controlling application or transport specification, or by controlling the environment in which bitstreams are distributed.