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AMENDMENT 1
2021-07

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

Part 2:

High efficiency video coding

**AMENDMENT 1: Shutter interval
information SEI message**

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

Partie 2: Codage vidéo à haute efficacité

*AMENDEMENT 1: Message SEI d'information sur l'intervalle
d'obturation*



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This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*, in collaboration with ITU-T (as Rec. ITU-T H.265).

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

Part 2: High efficiency video coding

AMENDMENT 1: Shutter interval information SEI message

Clause 4

Add an abbreviated term as follows:

ATSC Advanced Television Systems Committee

D.2.1

Replace the contents of D.2.1 with the following:

D.2.1 General SEI message syntax

sei_payload(payloadType, payloadSize) {	Descriptor
if(nal_unit_type == PREFIX_SEI_NUT)	
if(payloadType == 0)	
buffering_period(payloadSize)	
else if(payloadType == 1)	
pic_timing(payloadSize)	
else if(payloadType == 2)	
pan_scan_rect(payloadSize)	
else if(payloadType == 3)	
filler_payload(payloadSize)	
else if(payloadType == 4)	
user_data_registered_itu_t_t35(payloadSize)	
else if(payloadType == 5)	
user_data_unregistered(payloadSize)	
else if(payloadType == 6)	
recovery_point(payloadSize)	
else if(payloadType == 9)	
scene_info(payloadSize)	
else if(payloadType == 15)	
picture_snapshot(payloadSize)	
else if(payloadType == 16)	
progressive_refinement_segment_start(payloadSize)	

else if(payloadType == 17)	
progressive_refinement_segment_end(payloadSize)	
else if(payloadType == 19)	
film_grain_characteristics(payloadSize)	
else if(payloadType == 22)	
post_filter_hint(payloadSize)	
else if(payloadType == 23)	
tone_mapping_info(payloadSize)	
else if(payloadType == 45)	
frame_packing_arrangement(payloadSize)	
else if(payloadType == 47)	
display_orientation(payloadSize)	
else if(payloadType == 56)	
green_metadata(payloadSize) /* specified in ISO/IEC 23001-11 */	
else if(payloadType == 128)	
structure_of_pictures_info(payloadSize)	
else if(payloadType == 129)	
active_parameter_sets(payloadSize)	
else if(payloadType == 130)	
decoding_unit_info(payloadSize)	
else if(payloadType == 131)	
temporal_sub_layer_zero_idx(payloadSize)	
else if(payloadType == 133)	
scalable_nesting(payloadSize)	
else if(payloadType == 134)	
region_refresh_info(payloadSize)	
else if(payloadType == 135)	
no_display(payloadSize)	
else if(payloadType == 136)	
time_code(payloadSize)	
else if(payloadType == 137)	
mastering_display_colour_volume(payloadSize)	
else if(payloadType == 138)	
segmented_rect_frame_packing_arrangement(payloadSize)	
else if(payloadType == 139)	
temporal_motion_constrained_tile_sets(payloadSize)	
else if(payloadType == 140)	
chroma_resampling_filter_hint(payloadSize)	
else if(payloadType == 141)	
knee_function_info(payloadSize)	
else if(payloadType == 142)	
colour_remapping_info(payloadSize)	
else if(payloadType == 143)	
deinterlaced_field_identification(payloadSize)	

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else if(payloadType == 144)	
content_light_level_info(payloadSize)	
else if(payloadType == 145)	
dependent_rap_indication(payloadSize)	
else if(payloadType == 146)	
coded_region_completion(payloadSize)	
else if(payloadType == 147)	
alternative_transfer_characteristics(payloadSize)	
else if(payloadType == 148)	
ambient_viewing_environment(payloadSize)	
else if(payloadType == 149)	
content_colour_volume(payloadSize)	
else if(payloadType == 150)	
equirectangular_projection(payloadSize)	
else if(payloadType == 151)	
cubemap_projection(payloadSize)	
else if(payloadType == 152)	
fisheye_video_info(payloadSize)	
else if(payloadType == 154)	
sphere_rotation(payloadSize)	
else if(payloadType == 155)	
regionwise_packing(payloadSize)	
else if(payloadType == 156)	
omni_viewport(payloadSize)	
else if(payloadType == 157)	
regional_nesting(payloadSize)	
else if(payloadType == 158)	
mcts_extraction_info_sets(payloadSize)	
else if(payloadType == 159)	
mcts_extraction_info_nesting(payloadSize)	
else if(payloadType == 160)	
layers_not_present(payloadSize) /* specified in Annex F */	
else if(payloadType == 161)	
inter_layer_constrained_tile_sets(payloadSize) /* specified in Annex F */	
else if(payloadType == 162)	
bsp_nesting(payloadSize) /* specified in Annex F */	
else if(payloadType == 163)	
bsp_initial_arrival_time(payloadSize) /* specified in Annex F */	
else if(payloadType == 164)	
sub_bitstream_property(payloadSize) /* specified in Annex F */	
else if(payloadType == 165)	
alpha_channel_info(payloadSize) /* specified in Annex F */	
else if(payloadType == 166)	
overlay_info(payloadSize) /* specified in Annex F */	

else if(payloadType == 167)	
temporal_mv_prediction_constraints(payloadSize) /* specified in Annex F */	
else if(payloadType == 168)	
frame_field_info(payloadSize) /* specified in Annex F */	
else if(payloadType == 176)	
three_dimensional_reference_displays_info(payloadSize) /* specified in Annex G */	
else if(payloadType == 177)	
depth_representation_info(payloadSize) /* specified in Annex G */	
else if(payloadType == 178)	
multiview_scene_info(payloadSize) /* specified in Annex G */	
else if(payloadType == 179)	
multiview_acquisition_info(payloadSize) /* specified in Annex G */	
else if(payloadType == 180)	
multiview_view_position(payloadSize) /* specified in Annex G */	
else if(payloadType == 181)	
alternative_depth_info(payloadSize) /* specified in Annex I */	
else if(payloadType == 200)	
sei_manifest(payloadSize)	
else if(payloadType == 201)	
sei_prefix_indication(payloadSize)	
else if(payloadType == 202)	
annotated_regions(payloadSize)	
else if(payloadType == 205)	
shutter_interval_info(payloadSize)	
else	
reserved_sei_message(payloadSize)	
else /* nal_unit_type == SUFFIX_SEI_NUT */	
if(payloadType == 3)	
filler_payload(payloadSize)	
else if(payloadType == 4)	
user_data_registered_itu_t_t35(payloadSize)	
else if(payloadType == 5)	
user_data_unregistered(payloadSize)	
else if(payloadType == 17)	
progressive_refinement_segment_end(payloadSize)	
else if(payloadType == 22)	
post_filter_hint(payloadSize)	
else if(payloadType == 132)	
decoded_picture_hash(payloadSize)	
else if(payloadType == 146)	
coded_region_completion(payloadSize)	
else	
reserved_sei_message(payloadSize)	

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if(more_data_in_payload()) {	
if(payload_extension_present())	
reserved_payload_extension_data	u(v)
payload_bit_equal_to_one /* equal to 1 */	f(1)
while(!byte_aligned())	
payload_bit_equal_to_zero /* equal to 0 */	f(1)
}	
}	

D.2.48

Renumber subclause D.2.48 as D.2.49.

Add a new subclause D.2.48, as follows:

D.2.48 Shutter interval information SEI message syntax

shutter_interval_info(payloadSize) {	Descriptor
sii_time_scale	u(32)
fixed_shutter_interval_within_clvs_flag	u(1)
if(fixed_shutter_interval_within_clvs_flag)	
sii_num_units_in_shutter_interval	u(32)
else {	
sii_max_sub_layers_minus1	u(3)
for(i = 0; i <= sii_max_sub_layers_minus1; i++)	
sub_layer_num_units_in_shutter_interval[i]	u(32)
}	
}	

D.3.1

Replace the three paragraphs following NOTE 2 with the following:

The list SingleLayerSeiList is set to consist of the payloadType values 2, 3, 6, 9, 15, 16, 17, 19, 22, 23, 45, 47, 56, 128, 129, 131, 132, 134 to 152, inclusive, 154 to 159, inclusive, 200 to 202, inclusive, and 205.

The list VclAssociatedSeiList is set to consist of the payloadType values 2, 3, 6, 9, 15, 16, 17, 19, 22, 23, 45, 47, 56, 128, 131, 132, 134 to 152, inclusive, 154 to 159, inclusive, 200 to 202, inclusive, and 205.

The list PicUnitRepConSeiList is set to consist of the payloadType values 0, 1, 2, 6, 9, 15, 16, 17, 19, 22, 23, 45, 47, 56, 128, 129, 131, 132, 133, 135 to 152, inclusive, 154 to 159, inclusive, 200 to 202, inclusive, and 205.

In Table D.1, insert the following row at the end of the table:

Shutter interval information	The CLVS containing the SEI message
------------------------------	-------------------------------------