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Information technology — MPEG systems technologies —

Part 11: Energy-efficient media consumption (green metadata)

AMENDMENT 2: Energy-efficient media consumption for new display power reduction metadata

Technologies de l'information — Technologies des systèmes MPEG —

Partie 11: Consommation des supports éconergétiques (métadonnées vertes)

AMENDEMENT 2: Consommation des supports écoénergétiques pour les nouvelles métadonnées de réduction de la puissance d'affichage

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Information technology — MPEG systems technologies —

Part 11: Energy-efficient media consumption (green metadata)

AMENDMENT 2: Energy-efficient media consumption for new display power reduction metadata

Introduction

Replace the following:

The metadata for energy-efficient decoding specifies two sets of information: complexity metrics (CM) metadata and decoding operation reduction request (DOR-Req) metadata. A decoder uses CM metadata to vary operating frequency and thus reduce decoder power consumption. In a point-to-point video conferencing application, the remote encoder uses the DOR-Req metadata to modify the decoding complexity of the bitstream and thus reduce local decoder power consumption.

The metadata for energy-efficient encoding specifies quality metrics that are used by a decoder to reduce the quality loss from low-power encoding.

The metadata for energy-efficient presentation specifies RGB-component statistics and quality levels. A presentation subsystem uses this metadata to reduce power by adjusting display parameters, based on the statistics, to provide a desired quality level from those provided in the metadata.

with:

The metadata for energy-efficient decoding specifies two sets of information: complexity metrics (CM) metadata and decoding operation reduction request (DOR-Req) and response (DOR-Resp) metadata. A decoder uses CM metadata to vary operating frequency and thus reduce decoder power consumption. In a point-to-point video conferencing application, the remote encoder uses the DOR-Req metadata to modify the decoding complexity of the bitstream and thus reduce local decoder power consumption. The remote encoder uses the DOR-Resp metadata to acknowledge for the request and indicate how it has decided to answer.

The metadata for energy-efficient encoding specifies quality metrics that are used by a decoder to reduce the quality loss from low-power encoding.

The metadata for energy-efficient presentation specifies Attenuation Map Information (AMI) metadata, RGB-component statistics and quality levels. A presentation subsystem uses this metadata to reduce power by modifying the content based on attenuation maps and/or adjusting display parameters, based on the statistics, to provide a desired quality level from those provided in the metadata.

In a point-to-point video conferencing application, two types of interactive signalling mechanisms exist to reduce the energy consumption of the display. In a first type, a decoder can use the display attenuation map power reduction request (DAMPR-Req) message to request for transmission of display attenuation maps, that will be applied to the decoded content, to adapt the amount of light emitted by the display, and thus reduce the display energy consumption. The remote encoder uses the display attenuation map power reduction response (DAMPR-Resp) message, to acknowledge reception of the request and to indicate how it decides to answer. In a second type, a decoder can use the display power reduction attenuated video request (DPRAV-Req), to request the remote encoder to generate a given display attenuation map and apply it on the base video to generate an attenuated video. This attenuated video is then encoded and transmitted up to the

decoder. The remote encoder uses the display power reduction attenuated video response (DPRAV-Resp) message, to acknowledge reception of the request and to indicate how it decides to answer.

3.2

Add the following in alphabetical order:

AMI	attenuation map information
DA	display adaptation
DAMPR-Req	display attenuation map power reduction request
DAMPR-Resp	display attenuation map power reduction response
DPRAV-Req	display power reduction attenuated video request
DPRAV-Resp	display power reduction attenuated video response
picAMI	attenuation map sample values coded in auxiliary pictures of type AUX_ALPHA

6.2.2, Table 1

Replace the existing title of Table 1 with the following title:

Table 1 — Syntax for the AVC CMs

6.2.2, Table 2

Replace the existing title of Table 2 with the following title:

Table 2 — Syntax for the HEVC CMs

6.2.2, Table 3

Replace the existing title of Table 3 with the following title:

Table 3 — Syntax for the VVC CMs

6.3.2, Table 11

Replace the existing table with the following table:

Table 11 — Syntax for interactive signalling for remote decoder-power reduction

	Descriptor
dec_pow_reduction_type	u(2)
if (dec_pow_reduction_type = = 0) {	
dec_ops_reduction_req	s(6)
else if (dec_pow_reduction_type = = 1) {	
disable_loop_filters	u(1)
disable_bi_prediction	u(1)
disable_intra_in_B	u(1)
disable_fracpel_filtering	u(1)
user_defined_req	u(2)
}	
else if (dec_pow_reduction_type = = 2) {	

Table 11 *(continued)*

	Descriptor
pic_width_in_luma_samples	u(14)
pic_height_in_luma_samples	u(14)
frames_per_second	u(10)
}	
else if (dec_pow_reduction_type = = 3) {	
dec_pow_reduction_extension_type	u(2)
if (dec_pow_reduction_extension_type == 0) {	
nb_dec_pow_reduction_type_req	u(2)
for (i = 0 ; i < nb_dec_pow_reduction_type_req; i++){	
dec_pow_reduction_type_req_id[i]	u(2)
}	
}	
}	

Add the following at the end of subclause 6.3.2:

The transmitter then uses the message format described in Table 12 to acknowledge the request of the decoding operation reduction from the receiver:

Table 12 — Syntax for interactive signalling from the transmitter to acknowledge remote decoder-power reduction

	Descriptor
dec_pow_reduction_type_resp	u(2)
if (dec_pow_reduction_type_resp = = 0) {	
dec_ops_reduction_resp	s(6)
else if (dec_pow_reduction_type_resp = = 1) {	
disabled_loop_filters_resp	u(1)
disabled_bi_prediction_resp	u(1)
disabled_intra_in_B_resp	u(1)
disabled_fracpel_filtering_resp	u(1)
user_defined_resp	u(2)
}	
else if (dec_pow_reduction_type_resp = = 2) {	
pic_width_in_luma_samples_resp	u(14)
pic_height_in_luma_samples_resp	u(14)
frames_per_second_resp	u(10)
}	
else if (dec_pow_reduction_type_resp = = 3) {	
dec_pow_reduction_extension_type_resp	u(2)
if (dec_pow_reduction_extension_type_resp == 0) {	
nb_dec_pow_reduction_type_resp	u(2)
if (nb_dec_pow_reduction_type_resp == 0) {	
pic_width_in_luma_samples_resp	
pic_height_in_luma_samples_resp	
frames_per_second_resp	
}	
else {	
for (i = 0 ; i < nb_dec_pow_reduction_type_resp; i++){	