**3GPP TSG-SA4 Meeting #131-bis-eS4-250477**

**Online, 11th - 17th April 2025**

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| *CR-Form-v12.2* | | | | | | | | |
| **PSEUDO CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  |  | **CR** |  | **rev** |  | **Current version:** |  |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network | **X** |

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| ***Title:*** |  | | | | | | | | | |
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| ***Source to WG:*** | Apple Inc. | | | | | | | | | |
| ***Source to TSG:*** |  | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** |  | | | | |  | ***Date:*** | | |  |
|  |  | | | |  | |  | | |  |
| ***Category:*** |  |  | | | | | ***Release:*** | | |  |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Specification work needs to be completed for definition and constraints of random access that is missing so far for the operating points. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Adds constraints for random access. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Constraints for random access will remain missing. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 3.3, 7 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

\* \* \* First Change \* \* \* \*

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in TR 21.905 [1].

AVC Advanced Video Coding

CENC Common ENCryption

CMAF Common Media Application Format

DPC Device Playback Capabilities

FFS For Further Study

HDR High Dynamic Range

HDTV High-Definition TeleVision

HEVC High Efficiency Video Coding

HLG Hybrid Log-Gamma

MSE Media Source Extension

MVHEVC MultiView extensions of HEVC

[RAP Random access point or

SAP Stream Access Point]

SDR Standard Dynamic Range

UHD Ultra-High Definition

WCG Wide Colour Gamut

\* \* \* Next Change \* \* \* \*

7 Common System Integration

7.1 Introduction

This clause documents general functionalities that are relevant for integration of video codecs into delivery systems to support common APIs on encoders and decoders.

7.2 Functional Definitions

7.2.1 General

#### 7.2.1.0

This clause defines functional definitions for system integration.

Editor’s Note:

* See here for guidelines: https://www.w3.org/TR/webcodecs-hevc-codec-registration/
* Codecs String
* Random Access point
* Chunk
* Decoder Configuration Record

#### 7.2.1.X Random Access

[The constraints and requirements on random access depend on the type of service.

Constraints on random access for CMAF based streaming are specified based on Stream Access Point (SAP) definitions in [CMAF].

Editor’s Note: Guidelines on random access for other service types e.g. conversational, broadcast etc. need to be specified.

] Or we add definitions in the draft TS:

[

**Closed loop RAP (CL-RAP)** is an intra coded picture that can identify a RAP in a bitstream. It can be the first coded picture or can appear later in a bitstream. Each CL-RAP is the first picture in decoding order of a coded video sequence (CVS) but does not need to be an output picture or be the first picture in display order. All frames that follow a CL-RAP in decoding order and belong in the same coded video sequence are decodable and can potentially be all output by the decoder depending on their coding parameters.

**Open loop RAP (OL-RAP)** is an intra coded frame that can identify a RAP in a bitstream. It can be the first frame in the bitstream in decoding order or can appear later in the bitstream. An OL-RAP does not need to be an output picture or be the first picture in display order. Other pictures that follow the OL-RAP in coding order can refer to an OL-RAP for prediction. However, an OL-RAP, if it is the first picture in the bitstream in decoding order, may also be followed in coding order by some pictures that can refer to pictures that are not present in the bitstream. In that case, these pictures cannot be decoded. These pictures can be referred to as leading pictures. Subsequently, when those pictures are detected, they are not decoded and can be discarded by the decoder.

**Gradual decoder refresh (GDR) access point** identifies a RAP in a bitstream from where decoding operations can start by a decoder. However, unlike other RAP types, decoding may not be instantaneous and may initially result in decoding errors in the decoded and reconstructed pictures. Nevertheless, these decoding errors are expected to disappear after a certain maximum period, from which point decoding can continue without any further decoding errors.

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7.2.2 AVC

Editor’s Note: This needs to be completed.

7.2.3 HEVC

Editor’s Note: This needs to be completed.

\* \* \* End of Changes \* \* \* \*