**3GPP TSG-S4 Meeting#133-e*****S4-251335***

**Online, 18th–25th July 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:*** | | Clause 7 system operating point needs to be implemented in several aspects. For example, there is no reference to usage of various RAP types. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Added some usage of RAP types. | | | | | | | | |
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| ***Consequences if not approved:*** | | Guidance for RAP types will remain missing. | | | | | | | | |
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| ***Clauses affected:*** | | 7.2.1.4 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 \* \* \* \*

7.2.1.4 Random Access Point

7.2.1.4.1 Definitions

Different types of Random Access Points are defined as follows:

**- 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, presentation may not be instantaneous, or may initially result in presentation errors in the reconstructed pictures. Nevertheless, these presentation errors are expected to disappear after a certain maximum period, from which point decoding can continue without any further decoding errors.

7.2.1.4.2 Adaptive Streaming Applications

For adaptive streaming applications with CMAF [CMAF], CMAF fragments start with a CL-RAP. More CL-RAP or OL-RAPs may be present within those CMAF fragments. GDR is typically not used.

7.2.1.4.3 Messaging

Content shared with messaging applications starts with a CL-RAP. More CL-RAP or OL-RAPs may be present within the files shared via messaging. GDR is typically not used.

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