**3GPP TSG SA WG4 #113e *S4-210599***

**E-meeting, 6th – 14th April 2021 revision of S4-210463**

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| *CR-Form-v12.0* | | | | | | | | |
| **Pseudo CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **26.955** | **CR** | **<CR#>** | **rev** | **1** | **Current version:** | **0.6.0** |  |
|  | | | | | | | | |
| *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:*** | pCR26.955: Messaging and Social Sharing | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Qualcomm Incorporated | | | | | | | | | |
| ***Source to TSG:*** | SA4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | FS\_5GVideo | | | | |  | ***Date:*** | | | 2021-03-31 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Provides a basic overview on Messaging and Social Sharing  The configuration files are not yet provided and need to be done. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 document takes into account the agreed document S4-210568 and changes on top of this | | | | | | | | |
| ***56*** | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

**===== CHANGE =====**

### 6.5.3 Source Format Properties

Table 6.5.3-1 provides an overview of the different source signal properties for Social Sharing and Messaging. This information is used to select proper test sequences.

Table 6.5.3-1 Source Format Properties for Social sharing scenario

|  |  |
| --- | --- |
| Source format properties | Social Sharing |
| Spatial resolution | 3840x2160, 1920 x 1080, 1080x1920 |
| Chroma format | Y’CbCr |
| Chroma subsampling | 4:2:0 |
| Picture aspect ratio | 16:9, 9:16 |
| Frame rates | 24, 25, 30 Hz  50, 60 Hz (Full HD only) |
| Bit depth | 8, 10 |
| Colour space formats | BT.709, BT.2020 |
| Transfer characteristics | BT.709, BT.2100 (HDR) |

**===== CHANGE =====**

### 6.5.4 Encoding and Decoding Constraints

Table 6.5.4-1 provides an overview of encoding and decoding constraints for H.264/AVC Full HD and H.265/HEVC for Social Sharing and Messaging scenario. This information supports the definition of detailed anchor conditions.

Table 6.5.4-1 Encoding and Decoding Configurations

|  |  |  |  |
| --- | --- | --- | --- |
| Encoding and Decoding Constraints | General | H.264/AVC | H.265/HEVC |
| Relevant Codec and Codec Profile/Levels | Profile suitable for messaging content, no specific requirements.  Levels to meet the above formats | H.264/AVC Progressive High Profile  Level 4.2, 5.2 | H.265/HEVC Main-10 Profile  Level 4.1, 5.1 |
| Random access frequency | 1 second and 10 seconds | 1 and 10 seconds | 1 and 10 seconds |
| Bit rates and quality configuration | Capped-VBR (social sharing) and VBR (messaging)  Fixed QP | B = {5, 10,15, 20} Mbps  Capped-VBR (social sharing) and VBR (messaging)  Fixed QP | B = {2.5, 5, 7.5,10} Mbps  Capped-VBR (social sharing) and VBR (messaging)  Fixed QP |
| Bit rate parameters (CBR, VBR, CAE, HRD parameters) | Covering a range of relevant bitrates and qualities | No latency requirements beyond RAP so picture reordering allowed | No latency requirements beyond RAP so picture reordering allowed |
| Latency requirements and specific encoding settings | No latency requirements | No specific requirements | No specific requirements |
| Encoding complexity context | real-time encoding (social sharing), offline encoding (messaging) on mobile device, single path | tbd | tbd |
| Required decoding capabilities | Profile suitable for messaging content, no specific requirements.  Levels to meet the above formats | H.264/AVC Progressive High Profile  Level 4.2, 5.2 | H.265/HEVC Main-10 Profile  Level 4.1, 5.1 |

**===== CHANGE =====**

### 6.5.6 Interoperability Considerations

Social sharing and messaging applications require that the content is included in a packaging and file format.

**===== CHANGE =====**

### 6.5.7 Reference Sequences

Table 6.5.7-1 provides the selected reference sequences for this scenario. Keys are identified to refer to the sequences in the context of the scenario. The sequences are named and a reference to the details of the sequence is provided. A justification is provided, why this sequence is selected.

Table 6.5.7-1 Reference Sequences for Social sharing and messaging

|  |  |  |  |
| --- | --- | --- | --- |
| Key | Name | Reference | Justification/Comment |
| S4-R01 | Vertical-Bees | Annex C.5.2 | Full-HD, portrait Stationary sequence with graphic overlays. Easy. |
| S4-R02 | Vertical-Walking | Annex C.5.3 | Difficult content, Full-HD Portrait. |
| S4-R03 | Neon-4K | Annex C.5.4 | 4K difficult sequence, dark and noisy. |
| S4-R04 | Skater-4K | Annex C.5.5 | 4K Especially good on the face close-up. |

**===== CHANGE =====**

### 6.5.8 Anchor Definition

#### 6.5.8.1 Overview

This clause provides details on how to generate the anchors for the Social sharing and messaging scenario.

#### 6.5.8.2 H.264/AVC Anchors

##### 6.5.8.2.1 Overview

Table 6.5.8.2.1-1 provides an overview of the H.264/AVC anchor tuples. Keys are identified to refer to the anchors in the context of the scenario.

Table 6.5.8.2.1-1 Anchor Tuple generation with H.264/AVC for Social sharing and messaging

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Key | Clause | Reference Sequence | Reference Encoder | Config | Variations | Anchor Key |
| S4-A01-264 | 6.5.8.2.3 | S4-R01 | JM19.0 | SC-JM-01 | QP=[17,20,23,26,29,32] | S4-A01-264-<QP> |
| S4-A02-264 | 6.5.8.2.3 | S4-R02 | JM19.0 | SC-JM-01 | QP=[17,20,23,26,29,32] | S4-A02-264-<QP> |
| S4-A03-264 | 6.5.8.2.4 | S4-R03 | JM19.0 | SC-JM-02 | QP=[17,20,23,26,29,32] | S4-A03-264-<QP> |
| S4-A04-264 | 6.5.8.2.4 | S4-R04 | JM19.0 | SC-JM-02 | QP=[17,20,23,26,29,32] | S4-A04-264-<QP> |
| S4-A05-264 | 6.5.8.2.5 | S4-R01 | JM19.0 | SC-JM-03 | QP=[17,20,23,26,29,32] | S4-A05-264-<QP> |
| S4-A06-264 | 6.5.8.2.5 | S4-R02 | JM19.0 | SC-JM-03 | QP=[17,20,23,26,29,32] | S4-A06-264-<QP> |
| S4-A07-264 | 6.5.8.2.6 | S4-R03 | JM19.0 | SC-JM-04 | QP=[17,20,23,26,29,32] | S4-A07-264-<QP> |
| S4-A08-264 | 6.5.8.2.6 | S4-R04 | JM19.0 | SC-JM-04 | QP=[17,20,23,26,29,32] | S4-A08-264-<QP> |

##### 6.5.8.2.2 Common Parameters

To generate the anchor bitstreams, JM19.0 is used.

The common parameters are as follows:

- ProfileIDC = 100 (High Profile)

- IDRPeriod = IntraPeriod

- QPISlice = QPPSlice = QP

- NumberOfReferenceFrames = 4

- PList0References = 4 (P slice List 0 reference override)

- I16RDOpt = 1 (rd-optimized mode decision for Intra 16x16 MB)

- NumberBFrames = 0

- SearchMode = 0 (fast full search)

The following parameters are variables and triggered through updates of the config-file.

* QP: [17,20,23,26,29,32]

##### 6.5.8.2.3 S4-JM-01: FullHD, no Intra

The common parameters as defined in 6.5.8.2.2 apply.

In addition, the following parameters apply:

- LevelIDC = 42

- IntraPeriod = 0 (no intra)

- SearchRange = 64;

The settings are defined in the attached configuration file s4-jm-01.cfg.

##### 6.5.8.2.3 S4-JM-02: 4K, no Intra

The common parameters as defined in 6.5.8.2.2 apply.

In addition, the following parameters apply:

- LevelIDC = 52

- IntraPeriod = 0 (no intra)

- SearchRange = 128;

The settings are defined in the attached configuration file s4-jm-02.cfg.

##### 6.5.8.2.4 S4-JM-03: FullHD, Intra 1 sec

The common parameters as defined in 6.5.8.2.2 apply.

In addition, the following parameters apply:

- LevelIDC = 42

- IntraPeriod = 30

- SearchRange = 64;

The settings are defined in the attached configuration file s4-jm-03.cfg.

##### 6.5.8.2.5 S4-JM-04: FullHD, Intra 1 sec

The common parameters as defined in 6.5.8.2.2 apply.

In addition, the following parameters apply:

- LevelIDC = 52

- IntraPeriod = 30 (no intra)

- SearchRange = 128;

The settings are defined in the attached configuration file s4-jm-04.cfg.

#### 6.5.8.3 H.265/HEVC Anchors

##### 6.5.8.3.1 Overview

Table 6.5.8.3.1-1 provides an overview of the H.265/HEVC anchor tuples. Keys are identified to refer to the anchors in the context of the scenario.



Table 6.5.8.3.1-1 Anchor Tuple generation with H.265/HEVC for Social sharing and messaging

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Key | Clause | Reference Sequence | Reference Encoder | Config | Variations | Anchor Key |
| S4-A01-265 | 6.5.8.3.3 | S4-R01 | HM16.22 | SC-HM-01 | QP = [22,27,32,37,42] | S4-A01-265-<QP> |
| S4-A02-265 | 6.5.8.3.3 | S4-R02 | HM16.22 | SC-HM-01 | QP = [22,27,32,37,42] | S4-A02-265-<QP> |
| S4-A03-265 | 6.5.8.3.4 | S4-R03 | HM16.22 | SC-HM-02 | QP = [22,27,32,37,42] | S4-A03-265-<QP> |
| S4-A04-265 | 6.5.8.3.4 | S4-R04 | HM16.22 | SC-HM-02 | QP = [22,27,32,37,42] | S4-A04-265-<QP> |
| S4-A05-265 | 6.5.8.3.5 | S4-R01 | HM16.22 | SC-HM-03 | QP = [22,27,32,37,42] | S4-A05-265-<QP> |
| S4-A06-265 | 6.5.8.3.5 | S4-R02 | HM16.22 | SC-HM-03 | QP = [22,27,32,37,42] | S4-A06-265-<QP> |
| S4-A07-265 | 6.5.8.3.6 | S4-R03 | HM16.22 | SC-HM-04 | QP = [22,27,32,37,42] | S4-A07-265-<QP> |
| S4-A08-265 | 6.5.8.3.6 | S4-R04 | HM16.22 | SC-HM-04 | QP = [22,27,32,37,42] | S4-A08-265-<QP> |

##### 6.5.8.3.2 Common Parameters

To generate the anchor bitstreams, HM16.22 is used.

The common parameters are as follows:

- ProfileIDC = tbd

- IDRPeriod = IntraPeriod

- QPISlice = QPPSlice = QP

- tbd

The following parameters are variables and triggered through updates of the config-file.

* QP = [22,27,32,37,42]

##### 6.5.8.3.3 S4-JM-01: FullHD, no Intra

The common parameters as defined in 6.5.8.3.2 apply.

In addition, the following parameters apply:

- LevelIDC = 41

- IntraPeriod = 0 (no intra)

- tbd

The settings are defined in the attached configuration file s4-hm-01.cfg.

##### 6.5.8.3.3 S4-JM-02: 4K, no Intra

The common parameters as defined in 6.5.8.2.2 apply.

In addition, the following parameters apply:

- LevelIDC = 51

- IntraPeriod = 0 (no intra)

- tbd

The settings are defined in the attached configuration file s4-hm-02.cfg.

##### 6.5.8.3.3 S4-HM-03: FullHD, Intra 1 sec

The common parameters as defined in 6.5.8.2.2 apply.

In addition, the following parameters apply:

- LevelIDC = 41

- IntraPeriod = 30

- tbd;

The settings are defined in the attached configuration file s4-hm-03.cfg.

##### 6.5.8.3.3 S4-HM-04: FullHD, Intra 1 sec

The common parameters as defined in 6.5.8.2.2 apply.

In addition, the following parameters apply:

- LevelIDC = 51

- IntraPeriod = 30

- tbd

The settings are defined in the attached configuration file s4-hm-04.cfg.

**===== CHANGE =====**

### 6.5.9 Anchor Results

AVC anchor streams are provided according to the key system here:

* https://dash-large-files.akamaized.net/WAVE/3GPP/5GVideo/Anchors/Scenario-3/264

AVc anchor results are provided with the appropriate keys as defined in Table 6.5.8.2.1-1

* in the attached csv files
* https://dash-large-files.akamaized.net/WAVE/3GPP/5GVideo/Anchors/Metrics/Scenario-3/264

HEVC anchor streams are provided according to the key system here:

* https://dash-large-files.akamaized.net/WAVE/3GPP/5GVideo/Anchors/Scenario-3/265

HEVC anchor results are provided with the appropriate keys as defined in Table 6.5.8.3.1-1

* in the attached csv files
* https://dash-large-files.akamaized.net/WAVE/3GPP/5GVideo/Anchors/Metrics/Scenario-3/265

Editor’s Note:

* all results need to be generated