|  |  |
| --- | --- |
| **Joint Collaborative Team on Video Coding (JCT-VC)**  **of ITU-T SG16 WP3 and ISO/IEC JTC1/SC29/WG11**  6th Meeting: Torino, IT, 14-22 July, 2011 | Document: JCTVC-F464 |

|  |  |  |  |
| --- | --- | --- | --- |
| *Title:* | **On CDR picture** | | |
| *Status:* | Input Document to JCT-VC | | |
| *Purpose:* | Proposal | | |
| *Author(s) or Contact(s):* | **Ye-Kui Wang**  Huawei Technologies 400 Crossing Blvd, 2nd Floor Bridgewater, NJ 08807, USA  **Miska M. Hannuksela** Nokia Corporation Visiokatu 1 33720 Tampere, Finland  **Ying Chen** 5775 Morehouse Drive San Diego, CA 92121, USA | Tel: Email: | +1 908 541 3518 [yekui.wang@huawei.com](mailto:yekui.wang@huawei.com)  +358 40 521 2845 [miska.hannuksela@nokia.com](mailto:miska.hannuksela@nokia.com)  +1 858 845 6589 [cheny@qualcomm.com](mailto:cheny@qualcomm.com) |
| *Source:* | Huawei Technologies Co., Ltd., Nokia Corporation, Qualcomm Incorporated | | |

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Abstract

This document proposes some changes to clarify the definition of clean decoding refresh (CDR) picture, including a change of term to “clean random access (CRA)”, as well as other editorial changes.

# Introduction

The following notes can be found from the meeting notes of the 5-th JCT-VC meeting in “JCTVC-E\_Notes\_d8.doc” regarding clean decoding refresh (CDR picture:

*“At the moment, the indication of the CDR property is just advisory.*

*If necessary, the definition may be clarified in regard to the fact that currently no actual normative decoder action takes place in response to the detection of a picture being a CDR picture.”*

In this document, we propose some changes to clarify the definition, including a change of the term to “clean random access (CRA)”, as well as other editorial changes to match the changes to the definition.

# Proposed changes

The changes, in relative to HEVC WD3d8, provided below are proposed.

**3.xx clean random access (CRA) access unit**: An *access unit* in which the *primary coded picture* is a *CRA picture*.

**3.xx clean random access (CRA) picture**: A *coded picture* containing only *I slices* and for which each *slice* has nal\_unit\_type equal to 4, which also indicates that all *coded pictures* that follow a CRA picture in both *decoding order* and *output order* can be decoded without *inter prediction* from any *picture* that precedes the CRA picture in *decoding order*.

# 4 Abbreviations

For the purposes of this Recommendation | International Standard, the following abbreviations apply:

…

CRA Clean Random Access

…

Table ‑ – NAL unit type codes, syntax element categories, and NAL unit type classes

|  |  |  |
| --- | --- | --- |
| **nal\_unit\_type** | **Content of NAL unit and RBSP syntax structure** | **NAL unit type class** |
| 0 | Unspecified | non-VCL |
| 1 | Coded slice of a non-IDR and non-CRA picture slice\_layer\_rbsp( ) | VCL |
| 2-3 | Reserved | n/a |
| 4 | Coded slice of a CRA picture  slice\_layer\_rbsp( ) | VCL |
| 5 | Coded slice of an IDR picture slice\_layer\_rbsp( ) | VCL |
| 6 | Supplemental enhancement information (SEI) sei\_rbsp( ) | non-VCL |
| 7 | Sequence parameter set seq\_parameter\_set\_rbsp( ) | non-VCL |
| 8 | Picture parameter set pic\_parameter\_set\_rbsp( ) | non-VCL |
| 9 | Access unit delimiter access\_unit\_delimiter\_rbsp( ) | non-VCL |
| 10-11 | Reserved | n/a |
| 12 | Filler data filler\_data\_rbsp( ) | non-VCL |
| 13-23 | Reserved | n/a |
| 24..31 | Unspecified | non-VCL |

# Patent rights declaration(s)

**Huawei Technologies Co., Ltd. may have current or pending patent rights relating to the technology described in this contribution and, conditioned on reciprocity, is prepared to grant licenses under reasonable and non-discriminatory terms as necessary for implementation of the resulting ITU-T Recommendation | ISO/IEC International Standard (per box 2 of the ITU-T/ITU-R/ISO/IEC patent statement and licensing declaration form).**

**Nokia Corporation may have current or pending patent rights relating to the technology described in this contribution and, conditioned on reciprocity, is prepared to grant licenses under reasonable and non-discriminatory terms as necessary for implementation of the resulting ITU-T Recommendation | ISO/IEC International Standard (per box 2 of the ITU-T/ITU-R/ISO/IEC patent statement and licensing declaration form).**

**Qualcomm Incorporated may have current or pending patent rights relating to the technology described in this contribution and, conditioned on reciprocity, is prepared to grant licenses under reasonable and non-discriminatory terms as necessary for implementation of the resulting ITU-T Recommendation | ISO/IEC International Standard (per box 2 of the ITU-T/ITU-R/ISO/IEC patent statement and licensing declaration form).**