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| **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-F759 |

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| *Title:* | **Report of the BoG on clean random access (CRA) picture** | | |
| *Status:* | Input Document to JCT-VC | | |
| *Purpose:* | Report | | |
| *Author(s) or Contact(s):* | **Ye-Kui Wang** (BoG chair) Huawei Technologies 400 Crossing Blvd, 2nd Floor Bridgewater, NJ 08807, USA | Tel: Email: | +1 908 541 3518 [yekui.wang@huawei.com](mailto:yekui.wang@huawei.com) |
| *Source:* | BoG on clean random access (CRA) picture | | |

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# Abstract

This document provides the report of the BoG meeting on *clean random access (CRA) picture* at the 6-th JCTVC meeting. Changed definitions of *clean decoding refresh (CDR) picture* and *inter prediction*, provided in the BoG report, were agreed at the BoG meeting.

# Introduction

The related input documents are JCTVC-F381 and JCTVC-F464.

The BoG meeting was held at 13:30-14:00 on July 19, 2011, with the following participants:

- Peter Amon

- Thomas Davies

- Dzung Hoang

- Chanyal Kim

- Ajay Luthra

- Younqo Park

- Arturo Rodriguez

- Karsten Sühring

- TK Tan

- Wade Wan

- Ye-Kui Wang

The BoG agreed and recommends the following changed definitions of *clean decoding refresh (CDR) picture* and *inter prediction*.

# Text changes

The changes, in relative to HEVC WD3d8, provided below are proposed. For convenience, some related definitions that are not changed are also provided below.

The definitions of “*inter prediction*” and “*intra prediction*” are changed to cover also prediction of data elements, in addition to sample values (see the definition of *prediction process* and *predictor*). Actually, these changes also improves the definitions of “*I slice*”, “*P slice*”, and “*B slice*” to be more generic. If we keep the definitions of “*inter prediction*” and “*intra prediction*” unchanged but define the term “refer to” to cover sample values and data elements, then we may also additionally need to change the definitions of “*I slice*”, “*P slice*”, and “*B slice*”. If using the current definition of “*inter prediction*” and “*intra prediction*” is acceptable for the definitions of “*I slice*”, “*P slice*”, and “*B slice*”, then using “*inter prediction*” (i.e., not “refer to”) obviously also acceptable for the definition of “*CRA picture*”.

**3.xx B slice**: A *slice* that may be decoded using *intra* *prediction* or *inter prediction* using at most two *motion vectors* and *reference indices* to *predict* the sample values of each *block*.

**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* of the CRA picture has nal\_unit\_type equal to 4; all *coded pictures* that follow the CRA picture both in *decoding order* and *output order* shall not use *inter prediction* from any *picture* that precedes the CRA picture either in *decoding order* or *output order*; and any *picture* that precedes the CRA picture in *decoding order* also precedes the CRA picture in *output order*.

**3.xx** **I slice**: A *slice* that is decoded using *intra prediction* only.

**3.xx inter prediction**: A *prediction* derived from only data elements of *reference pictures* other than the current *decoded picture*.

**3.xx intra prediction**: A *prediction* derived from only data elements of the same decoded *slice*.

**3.xx P slice**: A *slice* that may be decoded using *intra* *prediction* or *inter prediction* using at most one *motion vector* and *reference index* to *predict* the sample values of each *block*.

**3.xx prediction**: An embodiment of the *prediction process*.

**3.xx prediction process**: The use of a *predictor* to provide an estimate of the data element (e.g. sample value or motion vector) currently being decoded.

**3.xx predictor**: A combination of specified values or previously decoded data elements (e.g. sample value or motion vector) used in the *decoding process* of subsequent data elements.

**3.xx random access**: The act of starting the decoding process for a *bitstream* at a point other than the beginning of the stream.

# 4 Abbreviations

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

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CRA Clean Random Access

…

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

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| **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 |