|  |  |
| --- | --- |
| **Joint Collaborative Team on Video Coding (JCT-VC)**  **of ITU-T SG 16 WP 3 and ISO/IEC JTC 1/SC 29/WG 11**  13th Meeting: Incheon, KR, 18–26 Apr. 2013 | Document: JCTVC-M0317 |

|  |  |  |  |
| --- | --- | --- | --- |
| *Title:* | **RCE2:Cross-check of Test 5 (JCTVC-M0079)** | | |
| *Status:* | Input Document to JCT-VC | | |
| *Purpose:* | Information | | |
| *Author(s) or Contact(s):* | Wen Gao  Harmonic Inc.  101 Morgan Lane  Plainsboro, NJ 08536, USA  Jing Ye Haoping Yu  Huawei Technologies (USA) 2330 Central Expressway Santa Clara, CA 95050, USA | Tel: Email: | [wen.gao@harmonicinc.com](mailto:wen.gao@harmonicinc.com)  [jing.ye@huawei.com](mailto:jing.ye@huawei.com)  [haoping.yu@huawei.com](mailto:haoping.yu@huawei.com) |
| *Source:* | Huawei Technologies (USA) | | |

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

# Abstract

This contribution provides the cross-check results of RCE2: Test 1 – Residual DPCM for HEVC lossless coding proposed by Samsung in JCTVC-M0079. The software provided by the proponent was reviewed and tested. The cross-check confirms the RDPCM results (with edge filtering) provided in JCTVC-M0079.

# Introduction

The software package obtained from the proponent was reviewed. It is confirmed that the software matches the description in JCTVC-M0079.

# Test Results

The software package was successfully compiled in Windows Environment. The simulation was done in a Microsoft HPC cluster installed with Windows Server 2008R2 Enterprise (64-bit)

The cross-check results are provided in the attached Excel file. In the Excel file, the test sequences are four class-F sequences and two class-B sequences (Kimono1 and ParkScene) in YUV420 format, ten screen content coding sequences in GBR format, two range-extension sequences (EBUHorse and EBUWaterRocksClose) in YUV422 format and two range-extension sequences (EBURainFruits and BirdsInCage) in YUV444 format.

The summary of the test results are shown in the following table:

|  |  |  |  |
| --- | --- | --- | --- |
|  | **All Intra Main** | | |
|  | **compression ratio** | | Bit-rate saving |
|  | Reference | Tested |
| Class F | 4.6 | 5.2 | -9.3% |
| Class B | 2.1 | 2.2 | -4.5% |
| SC(GBR) | 7.5 | 8.5 | -11.1% |
| RangeExt | 2.2 | 2.3 | -2.8% |
| **Overall (w/o SC)** | 3.2 | 3.4 | -5.7% |
| **Overall (w/ SC)** | 5.3 | 6.0 | -8.4% |
| Enc Time[%] | xx% | | |
| Dec Time[%] | xx% | | |
|  | **Random Access Main** | | |
|  | **compression ratio** | | Bit-rate saving |
|  | Reference | Tested |
| Class F | 29.3 | 31.4 | -5.7% |
| Class B | 2.6 | 2.6 | -0.9% |
| SC(GBR) | 88.8 | 98.1 | -7.7% |
| RangeExt | 2.5 | 2.6 | -0.7% |
| **Overall (w/o SC)** | 13.3 | 14.1 | -2.7% |
| **Overall (w/ SC)** | 51.0 | 56.1 | -5.2% |
| Enc Time[%] | xx% | | |
| Dec Time[%] | xx% | | |
|  | **Low delay B Main** | | |
|  | **compression ratio** | | Bit-rate saving |
|  | Reference | Tested |
| Class F | 47.4 | 49.4 | -4.6% |
| Class B | 2.6 | 2.6 | -0.6% |
| SC(GBR) | 301.9 | 333.7 | -7.1% |
| RangeExt | 2.5 | 2.5 | -0.6% |
| **Overall (w/o SC)** | 20.5 | 21.3 | -2.2% |
| **Overall (w/ SC)** | 161.2 | 177.5 | -4.6% |
| Enc Time[%] | xx% | | |
| Dec Time[%] | xx% | | |

Our simulations results exactly match the RDPCM results (with edge filtering) provided in JCTVC-M0079. Note that the encoding/decoding time is not reliable since the simulations were run on different type of windows machines. Hence the Encoding/decoding time comparison is not provided in the summary.