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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-F551 |

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| *Title:* | **Cross-check report for F158 on resolution switching** | | |
| *Status:* | Input Document to JCT-VC | | |
| *Purpose:* | Information | | |
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# Abstract

This document reports the evaluation of the proposal [F158] on resolution switching for coding efficiency and error resilience. The results confirm the proponent’s BD-rates. The running times are close to the proponents’ and within the range of variability associated with the cluster used for the experiments. The proponents’ code has also been analysed and found to match the proponents’ stated aim.

Results

Three tests were run, each comparing two different configurations. Four test points were used, low delay and low delay P, high efficiency and low complexity. The tables below summarise the results. The complete set of results can be found in the associated Excel spreadsheets.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Low delay B HE | | | Low delay B LC | | |
|  | Y | U | V | Y | U | V |
| Class A |  |  |  |  |  |  |
| Class B | -5.2 | -10.2 | -11.2 | -5.1 | -9.9 | -10.5 |
| Class C | -2.2 | -4.2 | -4.1 | -2.1 | -4.3 | -3.7 |
| Class D | -1.7 | -5.7 | -4.3 | -1.6 | -2.0 | -2.8 |
| Class E | -16.4 | -27.7 | -33.3 | -15.6 | -31.1 | -36.6 |
| **Overall** | **-5.7** | **-10.8** | **-11.8** | **-5.4** | **-10.5** | **-11.8** |
| Enc Time[%] | 100% | | | 100% | | |
| Dec Time[%] | 100% | | | 100% | | |
|  |  |  |  |  |  |  |
|  | Low delay P HE | | | Low delay P LC | | |
|  | Y | U | V | Y | U | V |
| Class A |  |  |  |  |  |  |
| Class B | -4.9 | -9.8 | -11.4 | -5.1 | -10.2 | -11.3 |
| Class C | -2.1 | -4.4 | -3.9 | -2.2 | -5.1 | -4.6 |
| Class D | -1.6 | -7.2 | -5.4 | -1.7 | -3.0 | -3.1 |
| Class E | -16.5 | -29.0 | -35.3 | -16.3 | -32.8 | -38.2 |
| **Overall** | **-5.6** | **-11.4** | **-12.5** | **-5.6** | **-11.4** | **-12.6** |
| Enc Time[%] | 100% | | | 100% | | |
| Dec Time[%] | 100% | | | 100% | | |

Table - Common conditions comparison (configs 1 and 2)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Low delay B HE | | | Low delay B LC | | |
|  | Y | U | V | Y | U | V |
| Class A |  |  |  |  |  |  |
| Class B | -6.4 | -11.9 | -12.5 | -6.3 | -11.5 | -11.7 |
| Class C | -2.7 | -5.6 | -5.0 | -2.5 | -5.6 | -5.1 |
| Class D | -2.1 | -6.6 | -5.4 | -1.9 | -2.7 | -3.9 |
| Class E | -21.3 | -30.0 | -36.6 | -20.5 | -31.9 | -38.6 |
| **Overall** | **-7.2** | **-12.4** | **-13.4** | **-6.9** | **-11.7** | **-13.1** |
| Enc Time[%] | 95% | | | 96% | | |
| Dec Time[%] | 95% | | | 96% | | |
|  |  |  |  |  |  |  |
|  | Low delay P HE | | | Low delay P LC | | |
|  | Y | U | V | Y | U | V |
| Class A |  |  |  |  |  |  |
| Class B | -6.0 | -11.9 | -13.0 | -6.2 | -11.4 | -12.1 |
| Class C | -2.6 | -5.4 | -4.9 | -2.5 | -5.8 | -4.9 |
| Class D | -2.0 | -5.9 | -5.6 | -1.9 | -2.8 | -3.9 |
| Class E | -21.4 | -32.5 | -38.5 | -21.5 | -32.7 | -40.7 |
| **Overall** | **-7.0** | **-12.6** | **-13.9** | **-7.1** | **-11.8** | **-13.6** |
| Enc Time[%] | 95% | | | 95% | | |
| Dec Time[%] | 96% | | | 96% | | |

Table –Reduced intra-frame quality comparison (configs 3 and 4)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Low delay B HE | | | Low delay B LC | | |
|  | Y | U | V | Y | U | V |
| Class A |  |  |  |  |  |  |
| Class B | -6.6 | -12.3 | -12.8 | -6.7 | -12.0 | -12.0 |
| Class C | -2.9 | -6.0 | -5.6 | -2.8 | -5.8 | -5.2 |
| Class D | -2.2 | -7.0 | -6.3 | -2.3 | -4.4 | -5.0 |
| Class E | -21.5 | -30.5 | -37.3 | -20.9 | -33.6 | -39.9 |
| **Overall** | **-7.4** | **-12.8** | **-14.0** | **-7.3** | **-12.6** | **-13.8** |
| Enc Time[%] | 100% | | | 100% | | |
| Dec Time[%] | 99% | | | 100% | | |
|  |  |  |  |  |  |  |
|  | Low delay P HE | | | Low delay P LC | | |
|  | Y | U | V | Y | U | V |
| Class A |  |  |  |  |  |  |
| Class B | -6.4 | -12.3 | -13.0 | -6.6 | -12.2 | -12.4 |
| Class C | -2.7 | -5.7 | -5.4 | -2.8 | -6.4 | -5.4 |
| Class D | -2.3 | -5.8 | -7.4 | -2.3 | -4.1 | -4.8 |
| Class E | -21.5 | -32.4 | -40.2 | -21.6 | -35.1 | -42.0 |
| **Overall** | **-7.3** | **-12.8** | **-14.8** | **-7.4** | **-13.0** | **-14.3** |
| Enc Time[%] | 100% | | | 100% | | |
| Dec Time[%] | 100% | | | 100% | | |

Table –Intra QP+12 (configs 5 and 6)

# Conclusions

This document reports the evaluation of the proposal [F158]. on resolution switching for coding efficiency and error resilience. The results confirm the proponent’s BD-rates. The running times are close and within the range of variability of the cluster used for the experiments. The proponents’ code has also been analysed and has been deemed to match the proponents’ stated aim.

# References

[E700]Frank Bossen, “Common test conditions and software reference configurations”, JCTVC-E700, Joint Collaborative Team on Video Coding (JCT-VC) of ITU-T VCEG and ISO/IEC MPEG, Geneva, CH, March. 2011.

[F158] Thomas Davies, “Resolution switching for coding efficiency and error resilience”, JCTVC-F158, Joint Collaborative Team on Video Coding (JCT-VC) of ITU-T VCEG and ISO/IEC MPEG, Torino, IT, July. 2011.