

## VENDOR COMMENTS AND WBU-ISOG RESPONSES TO MPEG-4 HD CODEC INTEROPERABILITY TEST RESULTS

1. **Harmonic, 6/28/09**: Indicate testing was done on Dolby E – not Dolby.

Response: Transport Streams File (status as of June 22, 2009) and audio file will be revised to indicate transport streams provided as Dolby E streams.

2. **Harmonic, 6/28/09**: 4:2:0 38 Mbps Transport Streams should not have been part of the test procedure because the MPEG-4 standard does not support 4:2:0 above 15 Mbps.

Response: WBU-ISOG permitted vendors to supply 38 Mbps Transport Streams at 4:2:0 because of the small number of vendors supporting 4:2:2. WBU-ISOG does not take a position on whether 4:2:0 38 Mbps Transport Streams comply with the MPEG-4 standard.

3. **Harmonic, 6/28/09**: During tests the variable bit rate (VBR) should not drop below 95% in order to compare encoders performance on apples to apples basis. VBR measurements should be done continuously and not only at peak points. Otherwise, encoders that maximize TS bit rate utilization are at disadvantage.

Response: Vendors could not disable VBR only settings. If WBU-ISOG rejected all codecs based on continuous 95% TS fill rate, there would be only a few valid tests. The tests were designed to measure interoperability – not to compare performance. Fill rates were sufficient to determine interoperability.

4. **Thomson Grass Valley, 8/31/09**: The results for TS 12 and TS 18 tests should be modified to reflect the results of retests at the end of the week. The retests were done with a newly recorded stream in a format (frame mode) different from the TSs previously submitted (auto-field mode). Based on the retests of TS 12 and TS 18, Thomson requests that the results of TS 6, TS 12, TS 18 and TS 20 be revised to OK for the Fujitsu decoder.

Response: TS 12 and TS 18 were retested using a newly recorded stream in a different format (frame mode) than the previously recorded stream (auto-field mode). Telesat's notes from the tests show TS-12

was cleared for the Comtech, IDC and NTT decoders under the new format, but there are no notes showing that Fujitsu cleared, or that all vendor's decoders were retested with the new stream. Telesat's TS-18 retest notes show all previously problematic vendors cleared, but again, no notes that all vendor's decoders were retested. Thomson results will remain for the auto-field mode files due to the lack of notes regarding retesting of all vendor decoders with the new format files. No change will be made to TS-6 and TS-20 because no retests were performed.

5. **Thomson Grass Valley, 8/31/09:** The results for TS-19 should be modified to reflect the result of retests at the end of the week. The retests were done with a newly recorded stream in a format (frame mode) different from the TSs previously submitted (auto-field mode). Based on the retest of TS-19, Thomson requests that the results of TS-2, TS-3, TS-7, TS-11, TS-13, TS-19 and TS-21 for the Fujitsu decoder be changed from “no usable picture” or “frequent blocking and freezing” to “flashback on color bar.”

Response: Telesat’s notes on the results of the retest of TS-19 is “wide spread blocking.” Even if the results were “flashback on color bar”, this would be a fail condition. Accordingly, no changes will be made to TS-19 or the other tests as referenced. A note will be added that the test results of the referenced streams is likely due to the choice of auto field encoding.

6. **Sencore, 8/17/09:** Sencore requests that tests TS-2 and TS-21 for the Adtec encoder be removed. Sencore says that during the audio tests, the video from Adtec TS-2 and TS-21 was breaking up on some decoders that had previously decoded the Adtec TS without a problem. Sencore says its own subsequent analysis of the Adtec TS and interoperability tests confirms its position.

Response: Based on subsequent analysis, there may have been issues with the Adtec Transport Stream leading to inconsistent results. WBU-ISOG, however, cannot change the video test results based on subsequent private video tests and TS analysis. WBU-ISOG also cannot change the video test results based on audio tests during the test period when no official notes were made about video failures during the audio testing. If there had been time, there would have been retests during the test period.

7. **Tandberg, 8/27/09:** The equipment summary should be changed to show that the Tandberg EN8090 encoder supports PCM and Dolby E.

Response: The changes will be made.

8. **Tandberg, 8/27/09:** Tandberg states that TS-11 was not submitted because it was identical to TS-7 since Tandberg only supports 4:2:0.

Response: A note will be added to the submitted TS summary and to the TS-11 test results.

9. **Tandberg, 8/27/09:** Tandberg suggests that GOP lengths of the recorded TSs as measured by the CMA 1820 Analyzer be published.

Response: The measurements were informal and not comprehensive and therefore will not be published.

10. **Evertz, 8/31/09:** Evertz requests that the equipment summary should be changed to reflect that Evertz encoder 9780ENC – H264HD supports PCM.

Response: The change will be made.

11. **Evertz, 8/31/09:** Evertz suggests that there be an explanation of how to read the test tables.

Response: Such an explanation will be provided.

- 12: **Evertz, 8/31/09:** Evertz requests that a note be added to the audio, latency, long term lip sync and lip sync stating that Evertz has released new firmware since June, 2009 to address and optimize TS-8, latency and lip sync.

Response: The notes will be added.