

**WBU-ISOG
MPEG-2 AND MPEG 4 (H.264)
CONTRIBUTION
HD CODEC
INTEROPERABILITY PROGRAM
CONCLUSION**

WBU-ISOG
New York City
May 30-31, 2012
Tom Gibbon for NHK
Chair
MPEG-2 and MPEG-4 HD CODEC
INTEROPERABILITY PROGRAM

HISTORY

MAY, 2004 – WBU-ISOG BEGINS MPEG-2 HD CODEC
INTEROPERABILITY PROGRAM

MARCH, 2005 - FIRST ROUND TESTS IN OTTAWA AT TELESAT

JULY, 2005 - SECOND ROUND TESTS IN OTTAWA AT TELESAT

OCTOBER, 2005 - MEETING OF BROADCASTERS, CARRIERS AND
MANUFACTURERS TO DISCUSS RESULTS AND
NEXT STEPS

HISTORY (cont.)

APRIL, 2006 – WBU-ISOG PUBLISHES TEST RESULTS ON
WBU-ISOG EBSITE.

2006 - WBU-ISOG ADOPTS NEW TESTING PROGRAM

JUNE, 2007 - THIRD ROUND TESTS IN OTTAWA AT TELESAT

OCTOBER, 2007 - WBU-ISOG PUBLISHES RESULTS OF THIRD
ROUND OF TESTS

HISTORY (cont.)

OCTOBER 22-23, 2007 – WBU-ISOG DECIDES AT ITS SEMI-ANNUAL MEETING IN DUBROVNIK TO SPONSOR MPEG-4 INTEROPERABILITY TESTS.

JUNE, 2009 – ROUND 1 MPEG-4 FORMAL TESTS AT TELESAT

OCTOBER, 2009 – ROUND 1 MPEG-4 FORMAL TEST RESULTS PUBLISHED BY WBU-ISOG.

DECEMBER, 2009 – WBU-ISOG DECIDES TO SPONSOR ROUND 2 OF MPEG-4 TESTS.

HISTORY (cont.)

APRIL, 2010 – TELESAT APPOINTED AS TEST CONTRACTOR AND INVITATIONS SENT TO VENDORS.

OCTOBER 3-7, 2011 – ROUND 2 TESTS AT TELESAT.

DECEMBER, 2011 - WBU PUBLISHES SECOND ROUND MPEG-4 TEST RESULTS

BASIC ELEMENTS OF WBU-ISOG MPEG-4 HD CODEC INTEROPERABILITY PROGRAM

1. SPONSORSHIP BY WBU-ISOG
2. FORMAL UNIFORM NON-NEGOTIABLE PARTICIPATION AGREEMENTS SIGNED BY VENDORS
3. PAYMENT OF TEST FEES BY VENDOR TO TEST CONTRACTOR
- \$8,000
4. APPOINTMENT OF TELESAT AS TEST CONTRACTOR
5. TEST TAPES AND TRANSPORT STREAM PARAMETERS PROVIDED BY WBU-ISOG

BASIC ELEMENTS OF WBU-ISOG MPEG-4 HD CODEC INTEROPERABILITY PROGRAM (cont.)

6. TRANSPORT STREAMS CREATED BY VENDORS AND
UPLOADED TO TELESAT SERVER
7. TRANSPORT STREAMS DOWNLOADED BY VENDORS FOR
INFORMAL TESTS BY VENDORS
8. FORMAL TESTS CONDUCTED BY TELESAT
9. PUBLISH RESULTS OF TESTS ON WBU-ISOG WEBSITE

www.nabanet.com/wbuarea/library/documents.asp#sub_interoperability

SUMMARY OF LATEST MPEG-4 TEST RESULTS

- VIDEO

- 98% Pass Rate for 588 Tests
- Several Vendors did not support 4:2:2 10 bit or 4:2:2 8 bit

- AUDIO

- MPEG-2 97% Pass Rate for 36 Tests
- Dolby E 97% Pass Rate for 30 Tests
- PCM 83% Pass Rate for 30 Tests
- AAC 100% Pass Rate for 16 Tests
- Some vendors did not support Dolby E, PCM or AAC

CONCLUSIONS

- INTEROPERABILITY OF HD CODECS WAS A PROBLEM FOR MPEG-2 AND MPEG-4 CODECS
- VENDORS WERE WILLING TO COOPERATE TO SOLVE INTEROPERABILITY PROBLEMS.
- WBU-ISOG UNIQUELY QUALIFIED AS NEUTRAL THIRD PARTY
 - TO BRING INTERNATIONAL VENDORS TOGETHER
 - TO CREATE TEST PARAMETERS
 - TO PROVIDE TEST TAPES

CONCLUSIONS (CONT.)

- CRITICAL ELEMENTS FOR SUCCESSFUL INTEROPERABILITY PROGRAM
 - PLACE BURDEN ON VENDORS TO SOLVE INTEROPERABILITY PROBLEMS BEFORE TESTS.
 - CREATE PROCESS FOR SHARING TRANSPORT STREAMS
 - MAKE VENDOR PARTICIPATION AGREEMENTS TRANSPARENT AND NON-NEGOTIABLE

CONCLUSIONS (CONT.)

- CREATE TECHNICALS PARAMETERS FOR TRANSPORT STREAMS AND TESTS THAT ARE REPRESENTATIVE, BUT NOT BURDENSOME.
- HIRE GOOD TEST COORDINATOR WITH METICULOUS PLANNING FOR OPERATION OF TESTS
- MAKE RESULTS PASS/FAIL WITHOUT QUALITY ASSESSMENT
- PUBLISH RESULTS

CONCLUSIONS (CONT.)

- INTEROPERABILITY IS NEVER STATIC. EQUIPMENT AND SOFTWARE CONTINUES TO EVOLVE.
- WBU-ISOG PROGRAM DEMONSTRABLY IMPROVED INTEROPERABILITY OF HD CODECS
- WBU-ISOG PROGRAM HAS MADE BROADCASTERS, CARRIERS AND VENDORS AWARE OF THE CRITICAL IMPORTANCE OF INTEROPERABILITY