Amendment 1:2012 to
SMPTE 268M-2003

SMPTE STANDARD

File Format for Digital Moving-Picture Exchange (DPX) — Amendment 1

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Approved
March 14, 2012

Foreword

SMPTE (the Society of Motion Picture and Television Engineers) is an internationally-recognized standards developing organization. Headquartered and incorporated in the United States of America, SMPTE has members in over 80 countries on six continents. SMPTE's Engineering Documents, including Standards, Recommended Practices and Engineering Guidelines, are prepared by SMPTE's Technology Committees. Participation in these Committees is open to all with a bona fide interest in their work. SMPTE cooperates closely with other standards-developing organizations, including ISO, IEC and ITU.

SMPTE Engineering Documents are drafted in accordance with the rules given in Part XIII of its Administrative Practices.

SMPTE Amendment 1 to SMPTE 268M-2003 was prepared by Technology Committee 31FS.

Intellectual Property

At the time of publication no notice had been received by SMPTE claiming patent rights essential to the implementation of this standard. However, attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. SMPTE shall not be held responsible for identifying any or all such patent rights.

1 Scope

The purpose of this amendment is to modify SMPTE 268M-2003 so that the file format for Digital Moving-Picture Exchange (DPX) may be utilized as a container for Academy Density Exchange Encoding (ADX) code values.

2 Amendment of Section 2 – Normative references

Remove the following text from Section 2, Normative references, of SMPTE 268M-2003.

> ISO 8601:2000, Data Elements and Interchange Formats — Information Interchange — Representation of Time and Dates

Add the following text to Section 2, Normative references, of SMPTE 268M-2003.

> ISO 8601:2004, Data Elements and Interchange Formats — Information Interchange — Representation of Time and Dates
>
> SMPTE ST 2065-3 – Academy Density Exchange Encoding (ADX) — Encoding Academy Printing Density (APD) Values

3 Amendment of Section 6.2 – Television information header

The original and modified text is associated with Field 67.

The following text in Section 6.2, Television information header:

> Time offset from sync to first pixel (ms)

Shall be amended to:

> Time offset from sync to first pixel (microseconds)

4 Amendment of Table 5A – Transfer characteristics

The Table 5A amendment changes the transfer characteristic associated with code value 13 from "Reserved for future use" to "SMPTE ST 2065-3 Academy Density Exchange Encoding (ADX)".

Table 5A of SMPTE 268M-2003 shall be amended to

Code	Transfer characteristic
0	User defined
1	Printing density
2	Linear
3	Logarithmic [to be defined by SMPTE I23 Technology Committee, sub-group on "Transfer Characteristics"]
4	Unspecified video
5	SMPTE 274M
6	ITU-R 709-4
7	ITU-R 601-5 system B or G (625)
8	ITU-R 601-5 system M (525)
9	Composite video (NTSC); see SMPTE 170M
10	Composite video (PAL); see ITU-R 624-4
11	Z (depth) – linear
12	Z (depth) – homogeneous (distance to screen and angle of view must also be specified in user-defined section)
13	SMPTE ST 2065-3 Academy Density Exchange Encoding (ADX)
14-254	Reserved for future use

5 Amendment of Table 5B – Colorimetric specification

The Table 5A amendment changes the colorimetric specification associated with code value 13 from "Reserved for future use" to "SMPTE ST 2065-3 Academy Density Exchange Encoding (ADX)".

Table 5B of SMPTE 268M-2003 shall be amended to

Code [1)]	Colorimetric specification
0	User defined
1	Printing density
2	Not applicable
3	Not applicable
4	Unspecified video
5	SMPTE 274M
6	ITU-R 709-4
7	ITU-R 601-5 system B or G (625)
8	ITU-R 601-5 system M (525)
9	Composite video (NTSC); see SMPTE 170M
10	Composite video (PAL); see ITU-R 624-4
11	Not applicable
12	Not applicable
13	SMPTE ST 2065-3 Academy Density Exchange Encoding (ADX)
14-254	Reserved for future use
[1)] The codes are assigned to correspond to those in Table 5A, except where there is no appropriate colorimetric specification.	

6 Amendment adding Section 9 – Application specific header value constraints

The following text shall be added to SMPTE 268M-2003.

9 Application specific header value constraints

9.1 General

For the following applications the header field and values pairs shall be as indicated in this section.

9.2 Academy Density Exchange Encoding (ADX)

When the image data contained in a DPX file is represented by Academy Density Exchange Encoding (ADX) code values the header field and values pairs shall be as indicated in Table 7.

Table 7 – Constrained field values for use with ADX image data

Field	Value	Description
18	1 or 2	Image Elements shall be 1 or 2
21	Data structure for image element 1	
21.1	0	Data Sign shall be Unsigned
21.2	0	Reference low data code value shall be 0
21.3	Undefined [a]	Reference low quantity represented shall be Undefined
21.4	65535 or 1023	Reference high data code value for ADX_{16} shall be 65535 Reference high data code value for ADX_{10} shall be 1023
21.5	Undefined [a]	Reference high quantity represented shall be Undefined
21.6	50	Channel Descriptor shall be R, G, B
21.7	13	Transfer characteristic shall be ADX
21.8	13	Colorimetric specification shall be ADX
21.9	16 or 10	Bit Depth shall be 16 for ADX_{16} and 10 for ADX_{10}
21.10	0 or 1	Packing shall be 0 for ADX_{16} and the datum shall be packed sequentially 16 bits per sample. (i.e. no padding shall be used) Packing shall be 1 for ADX_{10} and the datum shall be packed three samples into a 32-bit word with 2 pad bits located in LSB.
22	Data structure for image element 2 (if the value of field 18 is 2)	
22.1	0	Data Sign shall be Unsigned
22.2	0	Reference low data code value shall be 0
22.3	Undefined [a]	Reference low quantity represented shall be Undefined
22.4	1, 255, 1023, or 65535	Reference high data code value shall be the 2^x-1 where x is the value of field 22.9.
22.5	Undefined [a]	Reference high quantity represented shall be Undefined
22.6	4	Channel descriptor shall be Alpha (matte)
22.7	0	Transfer characteristic shall be User defined
22.8	0	Colorimetric specification shall be User defined
22.9	1, 8, 10, or 16	Bit Depth shall be 1, 8, 10, or 16.
22.10	0 or 1	Padding shall be 0 when the value of 22.9 is 1, 8, or 16. Padding shall be 1 when the value of 22.9 is 10 and the datum shall be packed three samples into a 32-bit word with 2 pad bits located in LSB.
60-62	Undefined [a]	Header fields 60-62 shall be Undefined
64-73	Undefined [a]	Header fields 64-73 shall be Undefined

[a] The undefined values in this table shall be the undefined values as specified in section 4.2