D C D M

Stereoscopic Subtitle
XML File Format

Version 2.0

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1 Introduction

1.1 Purpose

This document specifies a DCDM stereoscopic subtitle XML file format to be used within composition containing stereoscopic pictures. It provides the depth information in order to generate an appropriate stereoscopic effect when displaying Subtitles.

1.2 Normative Reference

The following document is a normative reference to this specification:

- [CineCanvas] Subtitle Specification (XML File Format) for DLP Cinema Projection Technology - Rev C (2005, March 31), with the exceptions listed in section 2.

2 Stereoscopic Subtitle Essence

2.1 Stereoscopic Subtitle XML File Format

A stereoscopic subtitle XML file format compliant with this specification shall be an XML file that belongs to the same XML structure as the one defined by the document [CineCanvas] "Subtitle Specification for DLP Cinema Projection Technology", revision C dated from 03/31/2005, with the following exceptions:

- The `Version` attribute value of the `DCSubtitle` element shall be replaced with a `Version` attribute value belonging to the format defined in paragraph **2.2** and this value shall be "**Stereo-1.1-2**" for this version of this "Stereoscopic Subtitle XML File Format" document.

- The `Text` and `Image` elements defined in [CineCanvas] shall be replaced respectively with the `Text` and `Image` elements defined in the paragraph **2.3** below.

2.2 Version Attribute

The format of the `Version` attribute value of the `DCSubtitle` element shall belong to the following template: "**Stereo-x.y-z**", where:

- **x.y** is the "CineCanvas" version on which this stereoscopic format is based. This version of this "Stereoscopic Subtitle XML File Format" is based on "CineCanvas" revision C dated from 03/31/2005 – see [CineCanvas] - meaning: **x.y = 1.1**

- **z** is a revision number of the exceptions applied to the previous "CineCanvas" referenced format – this version of this "Stereoscopic Subtitle XML File Format" document corresponds to revision 2 of the exceptions definition, meaning **z=2**.

This should avoid confusion with a standard "CineCanvas" file for devices relying on the `Version` element value to check compliance, avoiding potential unexpected behavior at playback level.

2.3 Text and Image Elements Definition

The `Text` element structure shall be the same as the `Text` element defined in [CineCanvas], with an additional optional attribute called "ZPosition".

The `Image` element structure shall be the same as the `Image` element defined in [CineCanvas], with an additional optional attribute called "ZPosition".

The definition of the `ZPosition` attribute is the same for both the `Text` and `Image` elements and is presented below.

The `ZPosition` attribute provides a value corresponding to the horizontal distance between the two "eyes" (left and right eyes) at the screen plan level, in order to generate a stereoscopic effect.

The `ZPosition` attribute value shall be a percentage of the horizontal image size. The `ZPosition` attribute value can be either a positive or negative number. Negative number will move the subtitles away from the viewer. A positive number will bring the subtitle closer to the viewer. "ZPosition=0" corresponds to the plane of the screen.

The `ZPosition` attribute value of a `Text` or `Image` element shall ONLY be applied to the `Text` or `Image` element to which it belongs. In case the `ZPosition` attribute is missing in a `Text` or `Image` element, the default value zero shall be used – meaning that the subtitle has to be displayed in the plane of the screen.

The "eyes offsets" computation based on this `ZPosition` attribute is outside the scope of this document.

3 MIME Type

The MIME type for a track file containing such stereoscopic subtitle essence shall be text/xml;asdcpKind=Subtitle.

4 Annex A: Subtitle Spot Sample (Informative)

```
<Subtitle SpotNumber="54" TimeIn="00:12:43:040" TimeOut="00:12:50:010" FadeUpTime="20"
           FadeDownTime="40">

  <Text HAlign="left" HPosition="10.2" VAlign="bottom" VPosition="20.0" ZPosition="5.2"> This text is
        stereoscopic </Text >

  <Font Italic="yes">

        <Text HAlign="left" HPosition="10.2" VAlign="bottom" VPosition="15.0" ZPosition="5.1"> This text is
              italic and stereoscopic </Text >

  </Font>

  <Text HAlign="left" HPosition="10.2" VAlign="bottom" VPosition="10.0" ZPosition="5.0">This <Font
        Script="super">word </Font>is superscript and stereoscopic </Text >

</Subtitle>
```

5 Acronyms

Term	Definition
DCDM	Digital Cinema Distribution Master
XML	Extensible Markup Language

6 Document Revision History

Date	Version	Author	Description
09/11/2008	1.0	J-Ph. Viollet	First version.
09/12/2008	1.1	J-Ph. Viollet	`ZPosition` attribute moved inside `Text` and `Image` elements
10/14/2008	1.2	J-Ph. Viollet	Namespace removed and replaced with a different `Version` attribute format
11/26/2008	1.9	J-Ph. Viollet	Information outside the scope of the XML format removed for clarity
02/23/2009	2.0	J-Ph. Viollet	Minor editorial change to clarify `ZPosition` meaning