

# DCI Digital Cinema Initiatives, LLC

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Digital Cinema Initiatives, LLC, Member Representatives Committee

Digital Cinema Initiatives (DCI) provides detail on three of its efforts in the areas of new projection light sources, 3D subtitle rendering and standardized audio formats that are intended to ensure interoperability of distribution packages.

It is recommended that content providers, exhibitors and manufacturers keep abreast of SMPTE's<sup>1</sup> progress on upcoming standards in these areas and be prepared to implement these standards in a timely manner.

## New Projection Light Sources

New projection light sources, such as laser, supporting wider color space and higher dynamic range have emerged that hold the promise of an improved cinematic presentation. DCI is creating additional specifications in order to take advantage of these capabilities, while retaining one of its core objectives: to ensure that distribution packages are interoperable on all systems. DCI seeks to ensure that next-generation DCPs will be accurately reproduced on any system with this capability.

While these new specifications are being developed, DCI continues to require that projection systems conform to *SMPTE RP 431-2 D-Cinema Quality – Reference Projector and Environment*. This requirement allows content distributors to deliver a single package for play out on projection systems from different manufacturers and system configurations with the expectation that the content will be presented as intended regardless of light source.

## 3D Subtitle Rendering

DCI notes that 3D subtitle rendering is inconsistent, requiring content distributors to utilize expensive alternatives. Projection systems need to render 3D subtitles in an interoperable manner. DCI strongly recommends that all manufacturers ensure their equipment meets the requirements of the latest versions of SMPTE ST 429-5 *D-Cinema Packaging – Timed Text Track File*, SMPTE ST 428-7 *Digital Cinema Distribution Master – Subtitle*, and SMPTE ST 429-2 *D-Cinema Packaging – DCP Operational Constraints*. To facilitate implementation of 3D Subtitle rendering in all projection systems, it is suggested that manufacturers work with industry groups that are perform testing in this area and utilize their feedback.

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<sup>1</sup> Society of Motion Picture and Television Engineers

## Standardized Audio Formats

In order to ensure that distribution packages are interoperable on all systems, DCI plans to publish errata to the Digital Cinema System Specification later this summer detailing requirements that were initially outlined in the Digital Cinema Object-Based Audio Addendum published by DCI on September 9, 2013. These errata will include the addition of a Multiple Media Block (MMB) architecture, which will accommodate the playback of Object-Based Audio Essence (OBAE) from an Outboard Media Block (OMB). In addition, DCI expects industry adherence to the upcoming SMPTE common OBAE format standard when published.

For 5.1 and 7.1 audio, playback systems should be capable of playing content that adheres to the latest versions of SMPTE ST 429-2 *D-Cinema Packaging — DCP Operational Constraints* and SMPTE ST 428-12 *D-Cinema Distribution Master Common Audio Channels and Soundfield Groups*.