

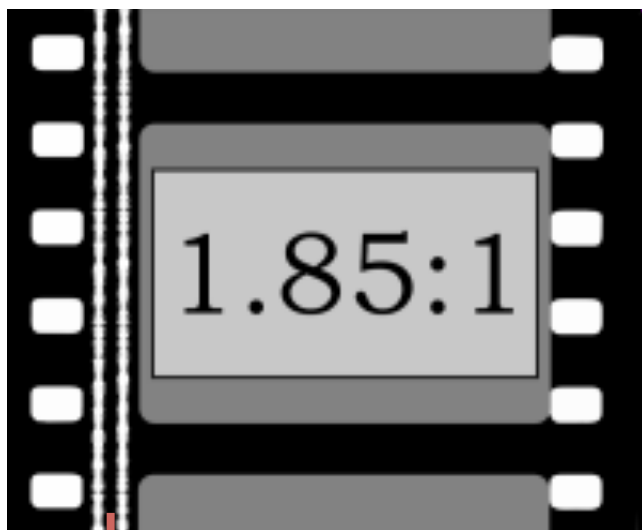


ACCESSIBILITY IN CINEMA

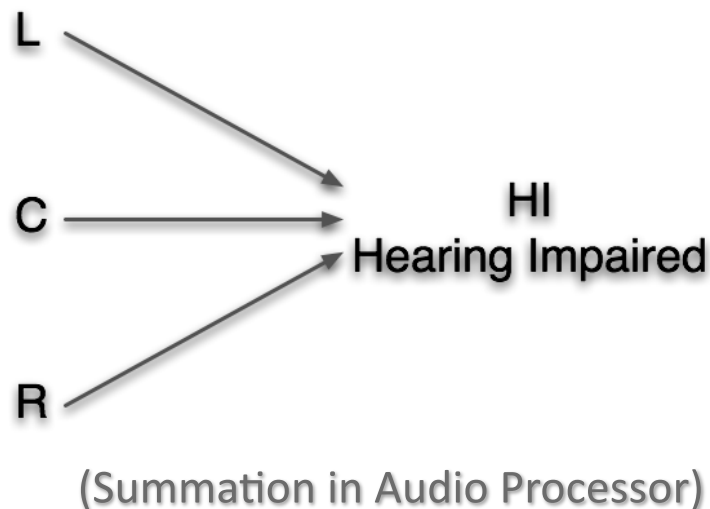
Michael Karagosian, MKPE Consulting LLC



Cinema's History With Accessibility



Stereo
Sound

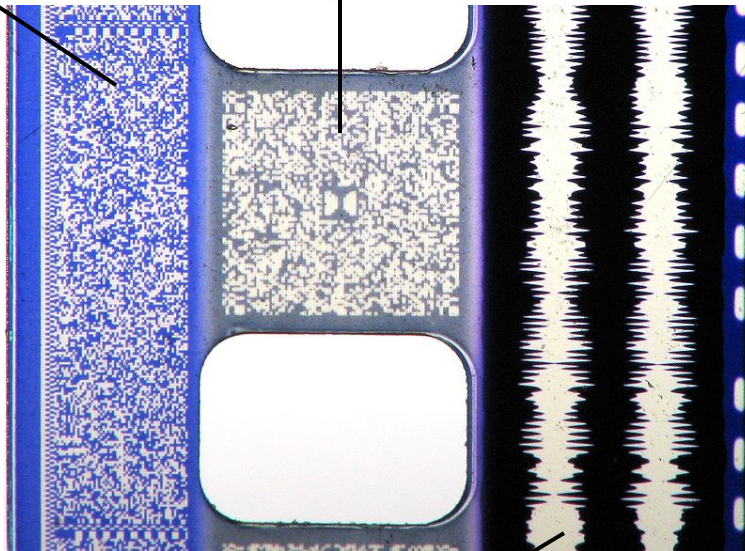


Digital Sound on Film in the 90's

Sony
SDDS

Dolby
Digital

DTS
Time
Code



Analog Sound



BSHOW
Where Content Comes to Life

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mkpe

DTS Introduced the Narrative Track and MoPix Closed Captions



Player



Visually Impaired
Narrative (VI-N)

Closed Caption System

MoPix[®] Motion Picture Access

(WGBH Rear Window)

Digital Cinema – An Open Approach



Competitive
Digital Cinema
Players



Visually Impaired
Narrative (VI-N)
Hearing Impaired (HI)

Competitive
Closed Caption Systems

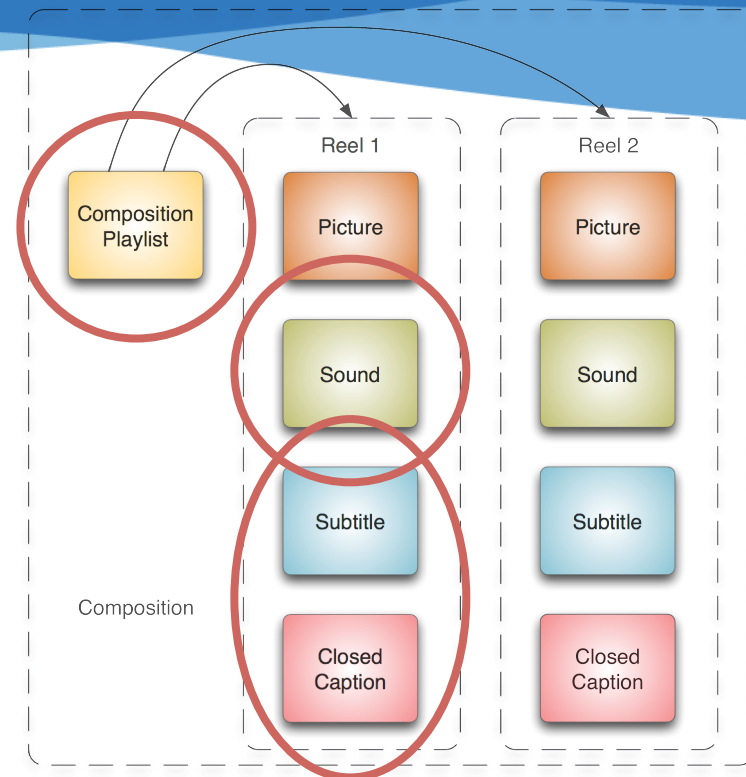
Path Forward



- Uniform content
- Open connectivity

Identifying the Work

- Audio channel assignments
- Closed Caption constraints using the Subtitle Asset file
- Composition Playlist (CPL)



Audio: S429-2 Annex A



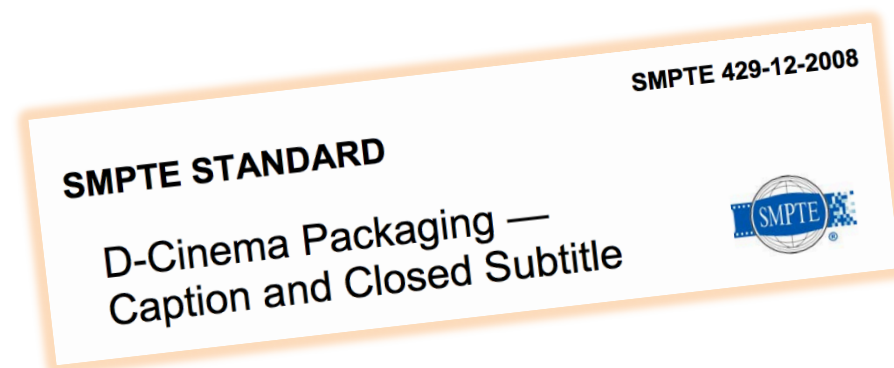
Table A.1 – Channel Configuration 1

Container Channel	SMPTE 428-3 label
1	L
2	R
3	C
4	LFE
5	Ls
6	Rs
7	HI
8	VI-N

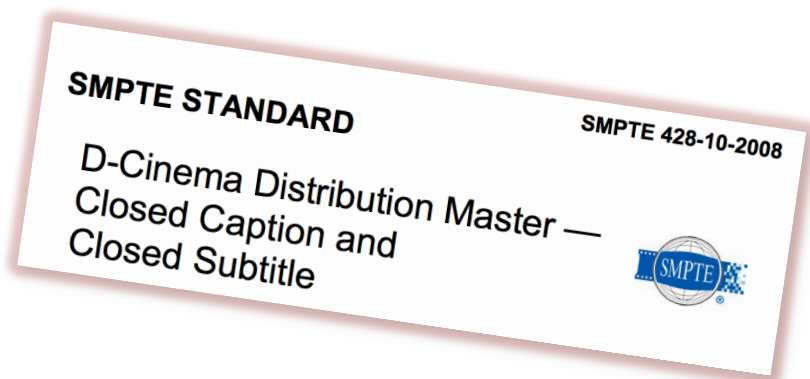
(One of several tables, each describing an audio format.)

CPL Extensions: S429-12

- Defines 3 new asset types:
 - ClosedCaption
 - ClosedSubtitle
 - MainCaption

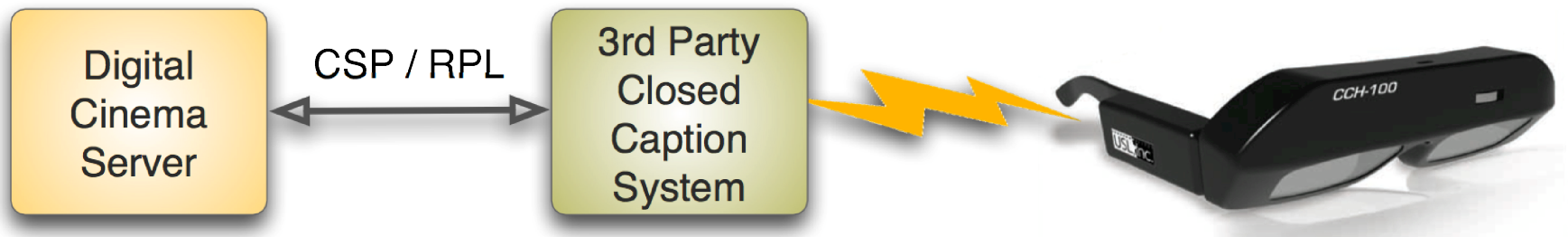


Subtitle Constraints: S428-10



- Constrains S428-7 Subtitle
 - No Image element
 - Max of 3 Text Elements
 - Repurposes Vposition

CSP / RPL : Open Connectivity

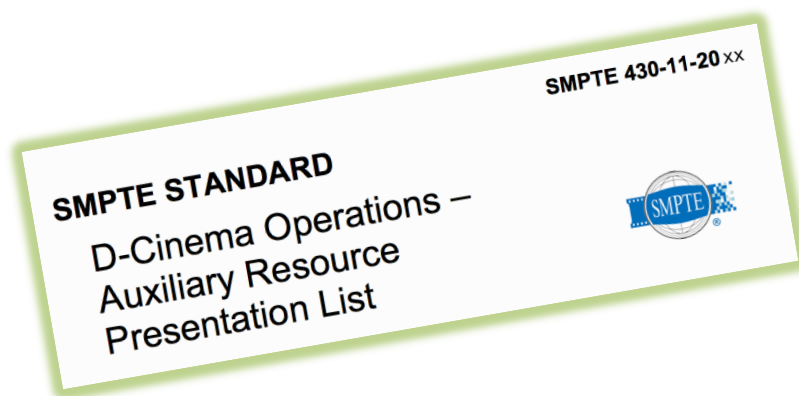


CSP: S430-10

- Content Synchronization Protocol
 - Control Protocol
 - Synchronization



RPL: S430-11



- Resource Presentation List
 - XML list of resources to be played
 - Pulled from the CPL

Summary

- **Uniform Distribution**
 - S429-2 Annex A places HI and VI-N channels
 - S429-12 defines accessible asset types
 - S428-10 constrains Subtitles for the Closed Caption application
- **Open Connectivity**
 - S430-10 Aux Content Synchronization Protocol
 - S430-11 Aux Resource Presentation List

The Result



Thank You

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