ISDCF Main Meeting Notes – March 9, 2022

<u>Upcoming Meetings</u>

EDCF call on Wednesday April 27 10am from CinemaCon
    (No InterSociety Meeting this CinemaCon.)
ISDCF Main Meeting - Wednesday May 4, 2022 10am (after CinemaCon)
ISDCF Main Meeting Tuesday June 14, 2022? 10am

Part 0: Open Mic (15 minutes prior to meeting start time)

Part 1: General Reporting

Housekeeping:
- Zoom meeting (provided by NATO)
- Set next meeting dates (above).
- Thank you Universal for support of the Chairman.
- Thank you to Inter-Society for providing general expenses and admin support.
- Meeting notes from January '2022 approved
- Making Zoom work! (mute/raise hand/front light)
- InterSociety - **Membership Fees coming back 2022**! Expect invoices soon! Go to website to register and get an invoice. $500 per company per year / $100 individual membership.
- Legal reminder / press reminder / Antitrust Disclaimer. The official antitrust guidelines are posted on our website and are linked from the main ISDCF page. A short verbal overview of guidelines was given. Please no-social-media for discussions held at ISDCF.

Attendance is at end of these notes.

Action Items from March 9, 2022

1. **Membership Invoices coming for 2022.** Join Inter-Society! https://isdcf.com $500 per company per year, $100 individual membership.
2. Update DCNC to show 2-4 characters for language code (from 2-3 characters)
3. Need to have exact limits for bit rate (and how to calculate it) for max bit rates.

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ICTA February 21-23, 2022

Good conference. Highlight was Peter Lude's report on LED direct view status. Well attended. Other topics included eSports and FEC (family entertainment centers).

This was the 50th anniversary of ICTA and the celebration dinner was excellent, including recognition of Jackie and Esther for their Ken Mason Award.

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ISDCF and InterSociety future

NATO announced the formation of a "Cinema Foundation" that should be a well supported non-profit in support of the cinema industry.

> "The Cinema Foundation involves technology companies, food and beverage leaders, members of the creative community and other individuals and companies that support exhibition.
>
> The founding board comprises NATO's Jackie Brenneman as president; Tori A. Baker from Salt Lake Film Society as vice president; Brian Schultz of Look Cinemas as secretary; Eduardo Acuna from Cinépolis Americas as treasurer; and directors Adam Cassels from Cinionic, Michelle Maddalena from Dolby Laboratories, and Katherine Twells from The Coca-Cola Company." (From Screen Daily)

The key priorities are: 1) Cinema Careers, Education and Diversity; 2) Moviegoing Promotion & Creative Involvement; 3) Center for Innovation & Technology.

It is likely that ISDCF will fold under the new Cinema Foundation with little or no change to our mission and operations. The role of InterSociety may be complete reestablished within the Foundation and will disappear as a stand alone entity.

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Immersive Audio

The usual question: Has anyone implemented new features in IAB devices that others have implemented that need to be part of an IAB profile 1? (Nope)

Some companies have implemented playback of a larger set than the IAB profile, but have limited the content creation to only profile 1. It doesn't make sense to go beyond profile 1 at this time.

430-17 now published. 430-14 soon to be published. At sometime ISDCF may do a plugfest, but only if we have at least 3 manufacturers ready to participate. It is not clear from the discussion if there is a strong desire for companies to implement these new communication standards.

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Frame Rate Testing

In anticipation of a high profile movie being released end of the year, we are aware that the movie master includes up to 48 frames / second in 3D (per eye) at up to 4K resolution. In the past we have experienced "pain" from release of content that is outside the normal technical specification (and ISDCF is all about "feeling your pain"), we opened the discussion about what we could/should be doing to help with this release (and other high frame rate movies).

ISDCF conducted HFR (high frame rate tests) in 2016 in anticipation of Ang Lee's Billy Lynn's Long Halftime Walk. Tested up to 3D60-4K and 2D120-4K (but some extracted the 2K layer). Issues included video/audio sync and subtitling problems. Some licensing issues were also identified.

First, Jerry's nomenclature (and we discussed this to try and make it more precise):

2D24-2K-250Mbs This is a standard 24 frames per second presentation in 2D with a 2048x1080 container with a max bit rate of 250Mbits/second.
3D48-4K-500Mbs This is a non-standard 48 frames per second per eye (a total of 96 frames per second in the file) to be presented in 3D (left and right eye) contained in a 4096x3160 container with a max bit rate of 500Mbits/second.

This short-hand is useful to discuss what's being presented, but it was seen as problematic since every character is critical and easy to mess up.

Table 1 – Pixel Array Dimensions

Format	Horizontal Pixels	Vertical Pixels	Frame Rate
2K Scope (2.39:1)	2048	858	24/1, 25/1, 30/1, 48/1, 50/1 or 60/1
2K Flat (1.85:1)	1998	1080	24/1, 25/1, 30/1, 48/1, 50/1 or 60/1
2K Full (1.90:1)	2048	1080	24/1, 25/1, 30/1, 48/1, 50/1 or 60/1
4K Scope (2.39:1)	4096	1716	24/1, 25/1 or 30/1
4K Flat (1.85:1)	3996	2160	24/1, 25/1 or 30/1
4K Full (1.90:1)	4096	2160	24/1, 25/1 or 30/1

We are expecting the upcoming release in the following formats:

2D24-2K-250Mbs - In spec, should work no problem
3D24-2K-250Mbs - In spec, widely released in the field, should work no problem
2D48-2K-250Mbs - In spec, should work no problem
2D24-4K-250Mbs - In spec, should work (not being considered for this movie)

Above are in the original SMPTE 429-2 and DCI's original DCSS and JPEG2000 profile

3D48-2K-500Mbs - The higher bit rate/higher frame rate has been tested in many systems (not all)

The following are out of spec, but has been tested and is being considered for release:

2D48-4K-500Mbs
3D48-4K-500Mbs

In table format:

Edit units / second	2D 2K	3D 2K	2D 4K	3D 4K
24	**250Mb/s**	**250Mb/s**	250Mb/s	500Mb/s
48	250Mb/s	**500Mb/s**	500Mb/s	**500Mb/s ***
60	500Mb/s	500Mb/s	500Mb/s	500Mb/s *
96	500Mb/s *			
120	500Mb/s *			

ISDCF Table 1 - Delivery Options for 2022 content

Note on edit units/second: for 3D content edit unit is PER EYE so is an actual delivery of twice the frames per second. 3D24 -> 48 frames / second; 3D60 -> 120 frames per second.

The bolded entries are the expected release formats for the upcoming movie. The (*) entries are questionable for playability by current systems.

The green entries are in the original spec. The orange entries have been proposed in a DCI document. The red entries were considered as part of Billy Lynn's Long Halftime Walk (which was released in 60fps).

A comment was made that while the goal was 500Mb/s it was common to master with a 450Mb/s to overcome possible implementation issues at playback. There are other restrictions on the bitstream (chroma channel, etc) that would allow a bitstream that met the 500Mb/s and would not comply.

Some systems require a special license for frame rates above 48fps. (Does that include 3D48?) Some required a special license for high frame rate at 4K content. You may need special licenses for some of these playback levels. THAT is one of the reason to exercise the test content to see what needs licenses and what works.

OK, now to comments. One company shared that in the past the test content didn't always match what the final release actually contained. Possible because the final content is produced by a number of different facilities and use different tools.

Some test content has been released. This includes:

MovieName_TST-2D-48fps_F_EN_EN_US_51_2K_..._20220112_..._SMPTE
MovieName_TST-2D-48fps_F_EN_EN_US_51_4K_..._20220112_..._SMPTE
MovieName_TST-2D-48fps_F_EN_EN_US_ATMOS_2K_..._20220210_..._SMPTE
MovieName_TST-3D-48fps_F_EN_EN_US_51_2K_..._20220112_..._SMPTE
MovieName_TST-3D-48fps_F_EN_EN_US_51_4K_..._20220112_..._SMPTE

There is a need to have very precise specification / definition of what is being authored / released. We could use good details for these variables.

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Too Many Names/Versions? (We expect more!)

How to filter the number of any single presentation to meet the needs of a specific theater?
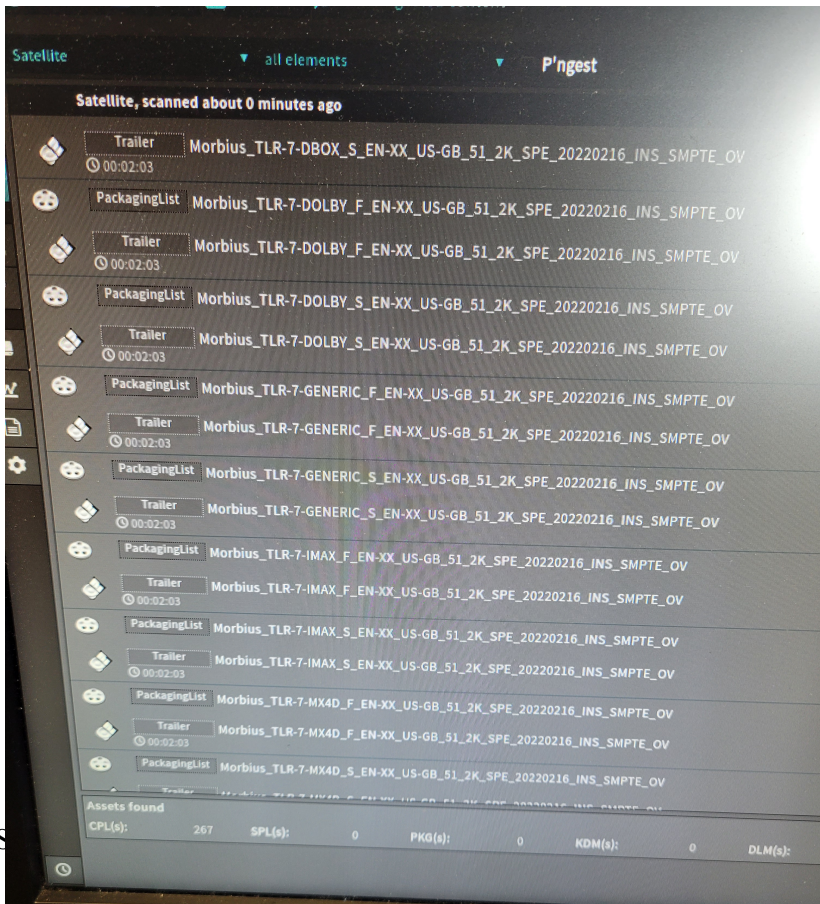
IF a server/TMS just read the metadata it would be possible to filter for a specific theater and NOT SHOW those that are not suitable.

Is it that users are not asking for this feature? Are the priorities in other places?

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SMPTE update

428-7 subtitles is in need of fixing, but there are few manufacturers that are participating.

Please look at RDD-52. This repository has been made public and is open to comments - please add any issues that need to be addressed. https://github.com/SMPTE/rdd52

Document Maintenance underway…

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Updated Test Package

LOTS OF WORK NECESSARY! Still in the queue.

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Website and IT updates

All good. More Facilities and Studios have been added.

New languages have been added after posting to the reflector - no comments made! Some language codes are now 4 characters long.

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ISDCF Terminology Document

We are waiting for input from ICTA.

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Pandemic Related

Pacific **Winnetka** 21 being dismantled

Samsung Onyx Screen and audio system sold on the used market…

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EDCF Update

Nothing to report.

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DCI update

Posted a video on testing for HDR.

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Digital Cinema Picture Levels

On hold.

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Maximum Bitrates in DCP - a point of pain

Spec says 250Mb/s, but some Features encoded at 250.02Mb/s failed **to load** on certain equipment. It rejected on ingest. On some, it ingested, but failed after a few days.

Some specific encoding devices (especially older equipment) show problems. One studios is considering putting a max bitrate of less than 250Mb/s (Between 245Mb/s and 248Mb/s).

We then had an esoteric discussion of the max bitrate spec:

There was a math error problem (bit vs byte) a number of years ago. Validation error used to exist years ago - again another math error. Some systems ignored the encryption overhead. It's more a problem with 4K content (not so much with 2K content).

It's not clear how/why the checking rejects content. It can't be based on absolute bitrate of the image since you can't know the exact bitrate if you can't decrypt a file. These may be (somewhat) arbitrary limit for a specific system.

BTW the 250Mb/s is shorthand for the exact numbers:

The max bitrate for a 24fps stream is 249999936 bps
The max bitrate for a 25fps is 250000000 bps
1302083 bytes/frame * 24 frame/sec * 8 bits/byte = 249999936 bits/sec

The ISO spec shows: $250 * 10^6$ bits per second. This was changed from an earlier version of the spec that specifies 1302083 bytes/frame.

There is a need to get clarification of the exact limits and how to measure them. We probably need a SMS limit for the "rejection" of an encrypted file.

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Vendor report

Nothing to report.

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Review of Action Items from last meeting.

Action Items from January 19, 2022

1. **Membership Invoices coming for 2022.** Join Inter-Society! https://isdcf.com $500 per company per year, $100 individual membership.
2. Create test material for 428-22 dummy subtitles for a virtual plugfest (Steve) — **Underway**
3. Form a problem statement write up of the need for improved rendering specification for 428-7 to formalize the business need for this effort to encourage manufacturers to participate. Or recommend a new direction for a style guide for authoring of subtitles. AdHoc group to be formed: Steve/Matt/Dean - we need people that have issues that need to be solved. — **Nothing underway**

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Attendance on next page.