EDCF GLOBAL UPDATE

The IBC conference is the place to go to keep abreast of the latest technological developments

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APART FROM READING this magazine, the one single way of ensuring you are up to date on the latest in cinema technology, is to attend the EDCF Global Update at IBC. Each year, general Secretary John Graham and CEO David Monk persuade some of the top people working at the cutting edge of new cinema technologies to come to Amsterdam to share their experience and knowledge with the cinema community. This year nine presentations gave a crash course into the latest ideas and happenings.

Facts and figures

David Hancock, from IHS, kicked off with a statistical update on cinema exhibition. His charts showed there are now 134,000 digital screens round the world (around 95 per cent of the globe's 144,000 screens). It was fascinating to learn of what he calls the 'stubborn rump' of 35mm screens — 2,000 'mom and pop' screens in the USA, 1,500 in South America — and to hear Venezuela has the lowest penetration of digital screens — just 35 per cent. The Czech Republic is only 65 per cent digital, and India still has some 8,000 single-screen cinemas which aren't. 3D still brings in $7billion dollars a year, 18 per cent of the world's box office. The percentages of 3D screens varies. The average is around 45 per cent, but 88 per cent of China's screens are 3D. Growing slowly is laser-illuminated projection, with total cost of ownership considerations being the key reason for adoption. Premium Large Format accounts for about 2 per cent of screens. David explained the different definitions of PLF and introduced us to PSF — Premium Small Format, up-market small 'niche' cinemas that are growing in popularity with affluent cinemagoers.

Laser progress

Jak Daem from Barco, chairman of the Laser Illuminated Projector Association brought us up to date, saying that LIP shipments will increase by 32 per cent per year until 2017. The norm will become 4000 lumens for home projection — this being the limit placed by safety authorities. LIPA has had to do a lot of education of the safety authorities, persuading them of the merits of a risk-based statistical analysis, and has had considerable success. Cinemas will need to provide a laser safety officer and to arrange appropriate training for staff. He introduced the idea of a 'minimum separation height' showing this might reduce the number of seats in auditoria, adding that this may be reduced to 2 metres in Europe from the first quarter of 2016.

Automated Key Delivery

John Hurst, CEO of Cinecert summarised progress on automated key delivery — current systems can be error-prone, require duplicated efforts and even NOCs can't always be sure everything is correct. KDM authoring systems need to ensure data is correct and readily available. An ideal situation might involve a single authority or organisation, but this is unlikely due to political, business, and privacy reasons. He described different methods of automated KDM delivery for varying circumstances. 'Pull' is where the TMS or SMS requests a KDM via some sort of Theatre Key Retrieval mechanism, while 'Push' delivers the KDM to a delegated authority (discovered via FLM — Facility List Management). This can be queried to discover the delivery status. Prototype systems are currently being trialled. With further talk of TDLs (Trusted Device List) and other topics that the ISDCF regularly considers, this was an in-depth, sometimes 'heavy' session, but it was important to understand the direction digital cinema technology is going.

Light field technology

Though not directly related to cinema exhibition, a presentation by Siegfried Fossel from Fraunhofer on light-field recording was fascinating. A light-field results from the capture of all light rays within a scene, making it possible to generate a perspective from any position, including the reconstruction of all depth-of-field information. Better understood as 'computational photography', the system consists of an array of high-definition cameras set up in a planar arrangement. The captured data can be processed and the scenes edited as needed during post-production. The algorithms developed by Fraunhofer IIS offer a wide range of editing features. Camera perspective can be shifted or expanded, as if the camera was actually moved, even though it was stationary during shooting. The multiple views allow the camera position to be virtually shifted. Without altering the position of cameras, the object can be moved closer to or further from the viewer. The system can generate HDR images from various perspectives or create 3D views from existing depth information. Images can be re-focused to provide any wanted depth of field, and I was interested to see how a badly under-exposed image could be completely re-lit so that the image became fully usable.

THE TOP PEOPLE COME TO IBC EACH YEAR TO SHARE THEIR KNOWLEDGE AND EXPERIENCE

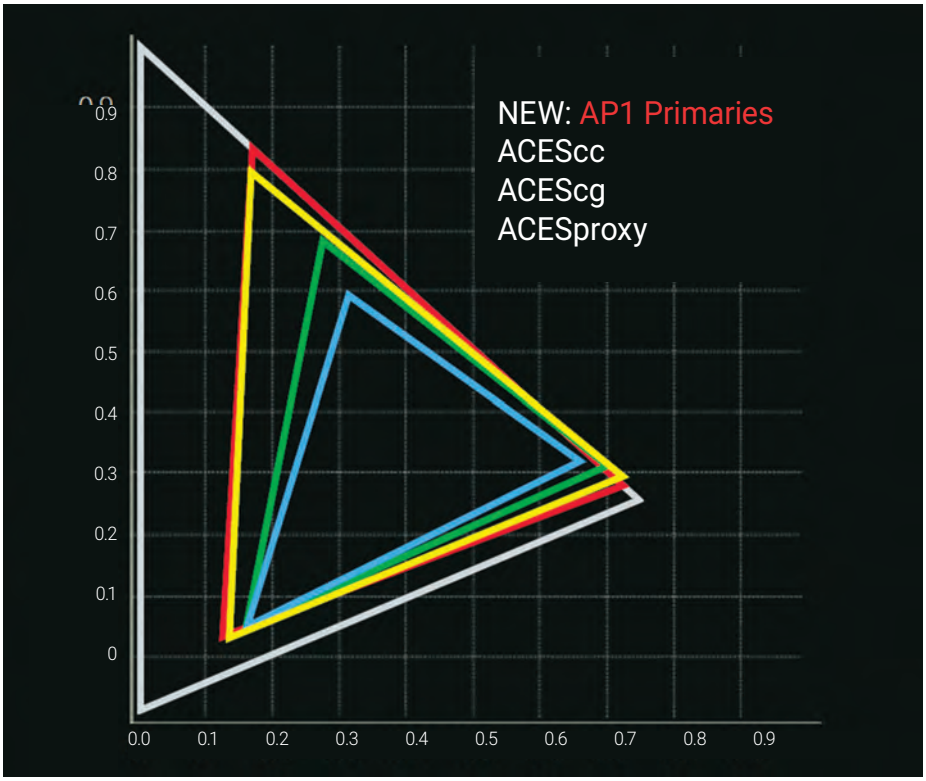
Keeping colour consistent

Andy Maltz from AMPAS explained how ACES Academy Color Encoding System, had moved from being a science project to a real world production tool. It is now integrated into products from over 20 manufacturers and is used in motion picture and television productions world-wide. ACES is being used to enable reliable digital image interchange, consistent color management throughout the film chain, and long-term archiving. I was interested to learn about the ACES AP1 primaries that are described as "rec.2020 plus". The colour gamut diagram (above) — printed colours are only indicative, of course — clearly shows this practical color gamut which is expected to be used by movie makers for colour correction and computer graphics. There was an unmissable offer from ACES — "*Everything is available here - oscars.org/aces — For Free!*".

Loudness matters

Julian Pinn, of Julian Pinn Ltd, discussed recent developments regarding loudness in cinemas. He said that we already have High Dynamic Range audio with our modern cinema systems, and although health and safety concerns had been checked and not found to be justified, there are still concerns over audio quality. The change from film, and the control that film's proprietary audio vendors had, has created a problem of conformity for cinemas that now receive content from a wide variety of sources. A survey by the Global Cinema Advertising Association (SAWA) showed the 'Level 7' fader setting was respected by just 18 per cent of cinemas. The SAWA survey led to updated

CIE 1931 CHROMATICITY DIAGRAM



recommendations to cover three scenarios: poor, medium and best practices. It is low budget, poorly mixed, non-cinematic ads that, when at high Leq(m) level still do not sound impressive, will not be fixed by increasing the loudness, and are the main cause for exhibition to reduce fader level to try to compensate for poor quality.

Option 1: For best results with the highest budget ads that result in the most cinema-friendly sound mix, the highest Leq(m) level of 82 dBLeq(m) is advised. Option 2: For medium results where only mixed stems are available, giving less quality and control, 80 dBLeq(m) as a maximum is recommended. Option 3: TV masters that cannot be remixed for cinema are limited to 78 dBLeq(m) in order not to jeopardise better ads. This new advice aims to lower advertising sound levels closer to the typical feature film.

Julian spoke of LEQ(m) measurement devices that are available, and updated us on recent standards work in ISO/TC36--Cinematography.

Formats and systems

Richard Welsh of Sundog Media provided a fast-moving presentation covering a range of topics in a short timeframe. He examined practical challenges of the huge proliferation of formats and sources that face the cinema, and what is involved in ensuring all formats deliver the highest quality on the big screen. The Sundog Media toolkit aims to optimise content right through from lens to screen. One of its tools provides single step DCPs from the digital source master, and supports ProRes, QT, MP4, DCDM and many more formats. 2K or 4K versions can be generated, and the DCPs can be pre-configured to SMPTE and Interop formats. Richard raised interesting points regarding noise issues in the different formats and showed how noise issues can impact compression, bit-rate, colour, and light levels. He said that JPEG 2000 has served the industry well, but suggested more efficient compression systems might be required in the future.

Automated measurements

François Helt from Highland Technologies talked about measurement and monitoring of cinema pictures. He reminded us that the quality of a projected film image was primarily down to the film lab, but with digital things are more complex for the exhibitor. He explained that there are real problems with existing ways of measuring screen brightness and colorimetry and why two experts can get different answers when making measurements. What is needed are measurements of multiple areas of the screen. François showed how their latest Qalif equipment, which was used at the Cannes Film Festival, effectively takes a snapshot of the whole screen and then analyses multiple different areas. This new generation of measuring equipment can provide reports and tie in with automatic systems to ensure that there is always an optimum picture. While some may view the equipment as dear, reduced operating expenses can justify it. If illumination is monitored and controlled constantly, then savings in electricity and xenon lamp life can result. The Qalif equipment can also see that the colour matrix is measured, adjusted and controlled automatically, so that a cinema can ensure that the quality of the image is the same day after day, without human intervention. François left us with more food for thought as he pointed out that there's no such thing as a standard observer — people see colour in different ways.

ACES Encodings

- ACES2065
- AP1
- REC.2020
- DCI-P3
- REC.709

SMPTE DCPs

David Monk, chairman of the EDCF/UNIC project group, explained how the long-awaited, long-debated transition to SMPTE DCPs is becoming an operational reality. He was positive about the progress being made, with practical testing due in October 2015. Teams are now developing software to check out different pieces of cinema equipment, and the rollout will provide a good picture of the state of the industry. He explained the many benefits that the change from Interop to SMPTE DCPs will bring, with all operators using a standardised format.

Questions had been asked throughout the well-attended EDCF session, but there was more interaction during the drinks session afterwards. I was amused to find IBC's security staff diplomatically trying to get EDCF delegates to leave long after the scheduled closing time! **CT**