SECTION MEETINGS

Hollywood
December 2008

The Hollywood Section held its annual holiday screening for members, families, and guests on December 11. The event, which included a screening of *Madagascar: Escape 2 Africa*, was presented, courtesy of Dreamworks Animation and Paramount Pictures. Lili Chapman, daughter of Section Chair Paul Chapman welcomed attendees.

The event was a collaboration with the Los Angeles Fire Department (LAFD), which sponsors the Spark of Life toy drive. Members donated new toys, which were collected onsite by the LAFD.—Richard P. May, Past Chair

LAFD firefighters were on hand to collect the toys for the firefighters Spark of Life toy drive.

Hollywood Section meeting attendees with LAFD firefighters.

Attendees gather for a group photo at the Hong Kong Section's DTV training course in January.

Hong Kong January 2009

Leong Tan, Specialist Engineer at Rhode and Schwarz Asia, greeted 125 participants at a training course organized by the SMPTE Hong Kong Section on January 17. The presentation, which consisted of five parts, began with an overview of digital TV's (DTV) current trend and DTV standards used in the world. Typical wireless transmission models and parameters were introduced and the benefits of C-OFDM were highlighted. Tan discussed the MPEG-2 transport stream and compression theory. He gave a basic overview of Digital Terrestrial Multimedia Broadcasting (DTMB) (China's national terrestrial TV standard) versus DVB-TH. This was followed by the introduction and trend of China Mobile Multimedia Broadcasting (CMMB) technology, covering overview, data structure, coding and physical layer, schedule of roll-out, and CMMB signal generation. The afternoon session was a hands-on demonstration of signal measurement, using live (DTMB) reception at the Kwun Tong Campus of the Institute of

Leong Tan demonstrates equipment to attendees during hands-on demonstration.

Vocational Education. Discussion included the measurements of signal quality, transmitter, coverage, and MPEG-2 signal analysis.—Tony Ngai, Section Chair

New York January 2009

Kodak hosted the New York Section meeting on January 21. The evening began with a lively social in which attendees networked and enjoyed light refreshments and snacks. Despite the cold weather, the meeting room was filled to capacity.

The presentation, titled "Digital Cinematography Technology/Cameras" was presented by Nestor Rodriguez, Senior Technical Project Leader at Kodak. Rodriguez began with a short electronic capture tutorial, reviewing pixels versus silver grain as sensors; color sensor configuration; and some of the different types of image sensor architectures used in motion imaging cameras today. He explained artifacts (e.g., moiré patterns) and image quality losses (e.g., MTF) associated with pixel under-sampling.

Rodriguez provided an overview of single versus three-chip color camera designs, log versus linear response, and striped versus Bayer CFA patterns, which concluded with an examination of the Foveon X3 sensor technology (stacked color sensor layers). He discussed some of the differences between various CMOS versus CCD sensor types and their effect on cinematography applications. Examples of image smear and distortion were presented, along with an explanation of why these occur, and why various digital camera manufacturers have created literally hundreds of algorithms to minimize these digital artifacts. The first part of the presentation concluded with camera sensor design criteria to consider which have an effect on aspect ratio resolution and color space matrixing/noise.

Attendees at the New York Section Meeting in January.

Rodriguez also examined several motion imaging cameras that are currently on the market. He, along with his team at Kodak, has had an opportunity over the years to test some of these cameras and he commented on some of the results of their evaluations. For other cameras, he quoted information currently available on the camera manufacturer's websites to summarize their particular design and performance characteristics.

The meeting concluded with a brief Q&A session.—Rich Carlson, Program Chair

New York September 2008

A meeting on the new Dolby 3-D Digital System, on September 17, was hosted by Dolby and held in Dolby's 88-seat screening room where the projection equipment had been modified for the presentation. The event, organized by New York Governor, Ken Hunold, was divided in two parts: the Dolby 3-D Digital Cinema System and Using Test Films to Maintain Sound Quality.

Photo ©Mark Forman

(L-R): Bill Allen, Sr. Director , Dolby; Ken Hunold, Dolby; Doug Sheer, NY Section Chair; and Speaker Jeff McNall, Dolby.

Jeff McNall, Cinema Products Manager for Dolby Laboratories, Inc., described and

Photo ©Mark Forman

Ed Schuller with List of Dolby Test Films.

demonstrated the technology behind Dolby's 3-D digital cinema system.

New 3-D digital cinema theaters continue to increase, as more story content is created for 3-D exhibition and more theaters are equipped to present it. Dolby achieves a 3-D effect through a wavelength triplet technique. A special filter wheel accessory is inserted inside the digital cinema projector and the 3-D image is reconstructed using corresponding fixed filters in the audience's glasses. The result is a clear, realistic 3-D representation with a full spectrum of colors. McNall's presentation was followed by demonstrations of 3-D digital cinema motion pictures provided by a variety of film production companies. The effect was to provide exceptionally clear and realistic picture images.

Edgar A. Schuller, Test Materials Advisor to the New York Section, presented a tutorial. A power point presentation by Brad Hohle of Dolby's California office, originally a comprehensive tutorial on maintaining and adjusting theater and post-production sound reproduction systems, was the basis for a version that was reduced for this meeting. Schuller was assisted by Steve Smith of Dolby's New York office. Only two of Dolby's roster of 15 test films and one SMPTE test material were examined, but each attendee received the complete list of Dolby test films. The need for sound test films was justified by the fact that worldwide film-based theater screens total about 185,000, while world digital screens number only 8,000. In the U.S., there are approximately 34,000 film-based screens, of which about 5,000 are equipped for digital projection. Therefore, the bulk of today's cinemas still depend on film-based sound reproduction for quality presentation, and that accurate alignment of analog and digital sound readers in reproducers is critical for optimum audience enjoyment. It was pointed out that the existence of four different types of sound tracks in use today, and the many configurations of manufactured sound reproducers, requires that qualified sound technicians must be employed to maintain the equipment.

The Dolby Tone Test film, #69T, with an 800-Hz, 50% modulated track, was described. It is used to set the correct Dolby operating level of the Cinema Processor. SMPTE's Buzz Track Test Film, P35-BT was illustrated on a chart. This sound test film is unusual in that there is no soundtrack in the standard specified area on the film. Instead, outside the designated track area, it carries a 300-Hz square wave on the perforation side of the film and a 1-KHz square wave on the picture side. By adjusting a lateral alignment knob for the film guide roller in the sound reproducer, the soundtrack can be aligned so that it is perfectly positioned opposite an illuminated slit lens assembly. Alternatively, if either of the two square waves is heard or viewed on an oscilloscope, the lateral track position needs adjustment. Poor alignment will result in clipping of high amplitudes in the track, as well as frequency distortion.

Dolby's Illumination Uniformity test film, Cat. No 566, was also described. Six separate frequences are recorded within the 0.076 in.-wide sound rack area—4, 2, and 1 KHz and 400, 200 and 100 Hz. As the soundtrack light enters the optics and sound slit, and then impinges on the soundtrack, the slit's lateral light should be uniform. If so, the tracks will modulate the light that reaches the photo receiver and produce six equal signal amplitudes; the resulting signals are sent to an amplifier and should result in six equal sound meter or oscilloscope levels. Uneven light across the slit lens will result in distortion.

In conclusion, Schuller stated that, all sound reproducers, whether at post-production companies, film laboratories, or theaters, should be periodically checked with test films by qualified sound technicians, and sound quality in any of the original production and post-production steps should not be taken for granted.

In the 20 years of serving as Test Materials Advisor for SMPTE's New York Section, Schuller has demonstrated and advised members on all the different picture and sound products that have been available from various test materials suppliers such as Digital Cinema Initiatives (DCI), British Kinematograph Sound & Television Society (BKSTS), National Institute of Standards & Technology (NIST), Dolby, SMPTE and many more. Schuller announced that this evening's presentation would probably be his last talk on the subject. The meeting concluded with a Q & A session.—Edgar A. Schuller, Chairman, Archival Papers and Historical Committee

Philadelphia January 2009

On January 13, members and guests gathered at the KYW/WPSG television facility in downtown Philadelphia. This two-station facility, which is almost two years old, serves the Delaware Valley with CBS on channels 3 (NTSC) and 26 (DTV) and the CW on channels 57 (NTSC) and 32 (DTV).

Section Chair Ken Herr opened the meeting, with about 40 attendees. Alan Keil, Director of Engineering at Ikegami provided the presentation, which focused on new technology for both an HD ENG/EFP camcorder and HD system cameras for studio and field use. Keil discussed CMOS sensors, which are now available for broadcast use with some fundamental

Attendees gathered at the KYW/WPSG (CBS-3 and CW-57) station in Philadelphia for a presentation and tour of the facilities.

differences compared to CCDs, including advantages in reduced power consumption, elimination of analog video proc and sensor drive circuitry, and flexible multiformat readout. He described digital video processing (DSP) and how it continues to evolve with new functions such as realtime compensation for variation resulting from to temperature, continuous optimization of Skin Detail, and improvement in the contrast handling of the video camera. DSP is also now available for flexible video compression of highly practical nonlinear camcorder design. Practical system cameras are similarly available using either SMPTE fiber or triax camera cable; and network, assignable control panels provide extensive remote control in a wide range of control configurations.

Alan Keil discusses new camera technology at the Philadelphia meeting.

Many attendees toured the television facility at the October 2007 meeting, but they were eager for an encore, conducted by Rich Paleski, Director of Operations and Engineering, along with the station staff. The facility, which opened in April 2007, is considered one of the most modern TV station plants, if not, the most, in the country. It was designed and built as an all-HD facility. The few SD signals coming into the stations are immediately upconverted to HD. All processing in the system is at full HD quality. Signals are downconverted to SD for National Television System Committee (NTSC) channels 3 and 57 as they leave the building for transmission via broadcast transmitter, cable, or satellite. Audio is handled either in stereo or 5.1 surround as needed by the program.—David Horowitz, Past Eastern Region Governor

Rochester
January 2009

On January 29, Kent Hatfield, VP of Technology & Operations at WXXI, Rochester, NY, provided a full discussion of the DTV transition and how his station is helping to educate the community on the switch. WXXI actively participates by providing troubleshooting support through a community telephone hotline and has also received approval from the Federal Communications Commission (FCC) to keep their analog signal beyond February 17, 2009, to provide on-air instruction for those without converter boxes. Hatfield demonstrated the simple installation of a set-top box and provided a live demonstration of the signals being received from WXXI's digital transmission. He also fielded several questions on broadcast signal strength differences and optimum antenna strategies to take full advantage of the digital signal. Hatfield also covered topics on digital compression strategies and broadcast data rates and discussed much of the equipment used in the station to master outgoing signals.

Following the presentation, Hatfield and Dave Sluberski, WXXI's Senior Audio Technologist, led the group on a tour of the station's production and broadcast facilities. WXXI is one of the more active PBS affiliates in the creation of content. The facility houses extremely modern production and post-production equipment for both picture and sound, complete with several studios used for local and national content generation. The tour included a visit to the recently renovated production control room, and the broadcast control room where PBS content is received and redistributed along with locally produced programming. Hatfield demonstrated equipment housed in the station, describing the purpose and capability of each. The tour ended with a visit to Sluberski's sound recording studio and pro tools mixing room.—David Long, Secretary/Treasurer

Sacramento
October 2008

Thirty-two members and guests attended the Section meeting on October 15, which was hosted by Telestream.

In a presentation titled Managing the Unmanageable, Transforming Media for Multi-Platform Delivery, John Pallett, Product Manager for Telestream, discussed the rapidly changing video environment in which content owners are challenged with managing the workflow of publishing media to multiple distribution channels for multiple platforms, including web, mobile, internet protocol television (IPTV), and video on demand (VOD).

Pallett illustrated the complexity of this challenge by taking his audience on a tour of the entire process required for just one video file to transition from original content to an output ready for the viewer.

The nontrivial journey for this video file includes transcoding the media between the input and output file formats and devices, integrating the business rules of content owners and distributors, extracting and inserting metadata, reshaping or tailoring the media to meet the needs of each distribution platform, and branding and internationalizing the media.

Although the journey for one video file is complex, it is still manageable. But, as the volume of media as well as the number of distribution channels and delivery platforms continue to rapidly increase, the challenge to produce workflow that is reliable and replicable (and maybe even profitable?) becomes exponentially more difficult.

Pallett discussed future solutions that are analogous to implementing a system enterprise resource planning (ERP). He believes flexible software solutions provide an integral component to automating the same type of processes for mass delivery of video files that are employed by the ERP systems of many manufacturing "goods" companies today. Although unable to make artistic decisions, and such, software developers continue to make great strides in automating production, managing infrastructure, monitoring workflow, identifying bottlenecks, and simplifying and automating key tasks. A brief Q & A session followed the presentation.—Mona Smothers, Section Manager

San Francisco
January 2009

For a moment in time, 40 members and guests gathered on January 29, at the Blue Pheasant Restaurant in Cupertino, CA, for a presentation titled, A Brief History of the Second, by SMPTE Fellow Al Kovalick of Avid Technology. Kovalick developed several themes centered on the second and its relationship to media systems. Although people often take for granted the tick of the clock, the second has deep mechanical, electrical, atomic, relativistic, astronomical, and poetic meaning. The presentation was divided into four parts: the basics of timekeeping; defining "the second" and Einstein's theory of relativity; atomic clocks; and time systems and their applications to video production and distribution.

The discussion included "Greenwich time balls," the all-important work, to navigation of clock inventor John Harrison, who strove to win the Longitude Prize of 1712; relativity theory and time dilation; Cesium clocks; ensemble clocks; sidereal time; UTC/TAI; GPS; and their ultimate connection to video systems timing.

Attendees enjoyed an interactive demo of the physical ensemble clock or paper clock. At a known reference time, Kovalick asked nine people to write the exact time displayed on their wristwatches.

Washington, D.C., meeting attendees in the Professional Products conference center.

Scott Anderson of ADC discusses fiber optic technology.

The results were averaged and a new "ensemble time" was derived, an average that was exactly the same as the known time, to the second!

Kovalick discussed various calendars, starting with the Egyptian, the most accurate with 365.25626 days, to the Julian with 365 days divided into 12 months, to the Gregorian that changed the first day of the year from March 25 to January 1 and added 10 days to the Julian calendar. Leap years are necessary because the length of a year is 365.242 days—the Egyptians were very close—while leap seconds keep the more stable atomic clocks (UTC) within 0.9 seconds of the earth's rotation (UTI). The earth does not rotate every 24 hours (solar mean time) but rotates, instead, on its axis every 86,400.002 seconds, slightly more than 24 hours. Even today, these 24 leap seconds continue to cause worldwide timing havoc, although without leap seconds, someday Friday would eventually but suddenly become Saturday!

SMPTE has been in the "time business" for half a century. At midnight on 1.1.1958, the SMPTE Epoch began a standard for measuring timing in television, audio, and film. Kovalick described the recent work of the SMPTE/EBU Task Force on Timing and Synchronization. This group is defining new methods of creating synchronization signals for media facilities. The current black-burst reference signal will be replaced with a new sync signal locked to GPS time. Any framing signal, regardless of frame rate and resolution, can be created within the media facility with precise horizontal and vertical timing relationships.

San Francisco Section manager Bill Reckwerdt organized the event, which was videotaped and edited by Tim Erskin for a later on-demand webcast via smpte.org.—Bill Reckwerdt, Section Manager

Toronto January 2009

The first meeting of 2009 officially began with the Section's "open mic" feature, followed by a presentation by Michel Proulx of Miranda and Randy Conrod of Harris Corp. The presentation titled, Active Format Description (AFD), covered all aspects of AFD, providing a good overview and substantial details of the inner workings of the standard, as well as an illustration of the visual problems it is intended to prevent.

A networking break followed the first half of the presentation. Case studies were then presented, which included a study by Clarence Hau of NBC Universal (who was unable to attend in person). Hau's study detailed NBC's broad implementation of AFD into its network and gave attendees insight to both the complexity and effectiveness of the technology once it is implemented.

The meeting can be viewed on archived meeting web-stream at www.smptetoronto.org.—Mike Prest, Past Secretary/Treasurer

Washington, D.C. September 2008

Washington, D.C., Section members and guests gathered at the headquarters of Professional Products in Gaithersburg, MD, for a presentation on fiber optic technology, by George Wicker and Scott Anderson of ADC Telecommunications. A Power Point presentation and demo equipment were used to explain the ins and outs of fiber connectivity. The presenters began with the history of guided light signal transmission and then moved into today's technologies, including single-mode and multi-mode fiber, connectors, termination, and cable handling.

Despite the external size of most fiber-optic cables, which is similar to that of conventional copper cables, most of the bulk is actually cladding and protective materials. The actual light-carrying fiber width varies from 9 microns for single-mode to 50 or 62.5 microns for multi-mode. In addition to the prodigious data capacity of a single fiber, various methods are available to push through even more data by multiplexing several light sources of different wavelengths into single fibers. The presenters also showed samples of new high-flexibility fiber, which can be twisted into knots without impeding light passage.—Eric Wenocur, Section Manager/Program Chair