

Rochester March 14, 2000

Well beyond the scope of terrestrial or even satellite television, this atypical program featured an overview of the Chandra X-ray Observatory. The presenter was Keith A. Havey, senior project engineer with Eastman Kodak Co.'s Chandra Program, Image Acquisition Systems. Havey's team played an integral role in the analysis, design, and construction of the X-ray telescope launched on space shuttle mission STS-93 in July 1999. Kodak's hardware on the mission included a 24 to 48-in. diameter high-resolution mirror assembly (HRMA) of four nested hyperboloid and four nested paraboloid glass surfaces for channeling X-rays to a receiver; a 26-ft cylindrical optical bench assembly, the largest composite structure in space; miscellaneous mechanisms and contamination covers; and thermal and mechanical control electronics—including 26 heaters, to maintain a mirror cavity average temperature requirement of $69.8 \pm 2.5F$.

Havey explained that assembly in a Class 100 clean room and support structure accounted for one-third of the hardware cost. Alignment tolerances of 1.3 were maintained on the iridium-coated HRMA, allowing for optical resolution of a stop sign from 12 miles. In orbit, however, the X-ray capabilities of Chandra have astonished many, with views of galaxies, nebula, and quasars up to six billion light years away. Havey concluded the presentation with a video depicting the wide range of institutional and industrial collaboration on the project. For instance, although TRW manufactured the Chandra spacecraft and its high-resolution CCD array was sourced from the Massachusetts

Institute of Technology and Penn State, the observatory is controlled by the Harvard-Smithsonian Center for Astrophysics—John P. Weiksnar, Section Manager/Membership Chair

San Francisco April 27, 2000

In January 1999, SMPTE and the Westinghouse/CBS affiliate KPIX presented one of the Bay Area's first public demonstrations of realtime, over-the-air DTV and HDTV. Audience reaction was enthusiastic, as Bay Area broadcasting history was being made. Now, almost 18 months later, how is terrestrial digital TV doing, both locally and nationally?

The April meeting titled "(H)DTV: So Far, So Good?" attracted more than 100 SMPTE and AES members and guests, who returned to the KPIX studios in San Francisco to hear equipment manufacturers and several San Francisco call-letter stations give their perspective on the impact of DTV on broadcast engineering and production departments, based on their experiences over the past 18 months. A panel discussion including Paul Black, KPIX, David Lingenfelter, KICU (San Jose), Ed Cosci and Bob Hofert, KTVU (SF/Oakland), Ron Wilensky, TCI (Technology for Communications International Inc.), and Lee MacPherson, KGO (San Francisco), shared their views on the near-term future of the technology.

The meeting started with a presentation by Ron Wilensky, who spoke about the challenges facing broadcasters, especially in the smaller marketplace. The industry has to come to grips with some difficult decisions, both financial and technical, with the transition to DTV. TCI recently sold an antenna system to local PBS station

KCSM, and Wilensky spoke about how new antenna designs can future-proof DTV channel allocations. Glen Sakata, Faroudja Laboratories Broadcast Group, discussed the need to create high-quality pictures using up-conversion techniques, citing that, as we move into the HDTV era consumers will no longer accept poor image quality. He stressed the need to start with high-quality pictures in order to provide good up-conversions. David Lingenfelter spoke about KICU's involvement with Intel in creating the Center for Datacasting Innovation. He explained how broadcasters can learn from the real-world experience that the partnership is providing. Intel has been developing data applications while KICU acts as the carrier/transmission site for the data. The project is slated to continue until December 31, 2001. Lee MacPherson noted that KGO's conversion to digital has proceeded exceptionally well.

The presentations were followed by an open panel discussion with local broadcast engineers discussing their experiences of putting stations on the air with a DTV signal. The panel ended after Ed Cosci related a story of how he and a San Francisco police officer, with 20 minutes to air, delivered a piece of HDTV equipment from a remote truck in the field to the studio to replace a defective studio unit. This saved the day for KTVU as the station aired the Bay Area's first live HDTV broadcast of the 1998 Chinese New Year's parade. It was a death defying trip and all the owners of HDTV sets got to see the pioneering broadcast live and in beautiful high definition. After the meeting, attendees had the opportunity to examine HDTV equipment provided by Panasonic, JVC, and Faroudja Laboratories.—Howard Kirsch, Section Manager

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