



## Christie and AMC Laser Projection Demo By Marty Shindler

Almost since the dawn of the modern era of 3D feature films, circa November 2005, the movie industry has commented on, complained about, and attempted to improve dim 3D images on the movie screen.

With polarizers on the projector and 3D eyewear, the amount of light that gets to our eyes is dramatically reduced, and that does not even take into account the fact that some theaters turn down the power on the projector lamps to save money, making images even dimmer. Only about 10–30% of the projector's light gets through most 3D systems.

Laser technology has been considered one of the best solutions, notwithstanding issues such as cost, perceived safety concerns, speckle, and the inertia of the installed base of digital projectors, most of which are still on their original leases.

Several projector makers have demonstrated laser-powered systems at industry conferences, but in early April **Christie Digital** held the first public demonstration of a laser prototype in the ETX auditorium of the **AMC Burbank 16**. For two weeks, all regular screenings of ***G.I. Joe: Retaliation*** were projected with the laser prototype, which is based on the 4K projection head of the Christie CP4230 DLP projector. It is capable of emitting 72,000 lumens, twice the output of a standard digital projector.

On April 4, Christie invited industry insiders, including me, to a presentation at which AMC's **Dan Huerta** and **Craig Sholder** and **Don Shaw** of Christie spoke. The packed auditorium then watched as images from four different movies were projected at 3 fL and 14 fL in succession on the theater's 65-foot (20-meter), 2.3-gain silver screen. The footage was color timed specifically for this demo and included clips from *Hugo*, *Puss in Boots*, *Transformers: Dark of the Moon*, and *G.I. Joe: Retaliation*.

I am never hired for my professional opinion on image quality, but even to my untrained eye, which can differentiate good from not-so-good, the difference was evident.

Christie's reps are taking orders now, and will deliver laser-powered systems by the end of 2013, but they warned that the current high cost of laser devices means that the earliest systems will offer "elusive" returns on investment, and only be cost-effective for the largest premium screens. They predicted widespread adoption of lasers is at least five years off.

During that time, there will be other factors at work, including the rollout of 4K or Ultra-HD televisions from the major manufacturers. Noting the progression of display technology from 720p to 1080p to 4K/UHD, it is easy to extrapolate that in five, seven, or ten years' time, today's 84-inch display could become a 40-, 50-, or 80-foot display in a movie theater.

Younger generations are accustomed to watching on a glass-type device and this would be no different. Indeed, it would probably enable other types of presentations, including alternative content, more easily than is the case now with standard digital projectors.

Then there is the question of who pays for another upgrade. Will studios contribute as they did with the virtual print fee in the conversion from celluloid to digital? My guess, and that of other people I spoke to at the demo, is no.

No matter how the technology progresses to provide a better and brighter image at the multiplex — laser, UHD LCD/LED/OLED or some new technology still in development — a solution is needed. What it will be is still TBD.

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### **Below is James Hyder's take on the technology, published in the same issue**

*LFX editor James Hyder was unable to attend the April 4 event, but went to an earlier public screening of the laser system, and filed these notes.*

I was slightly troubled when I entered the ETX theater at AMC's Burbank 16 theater, because the trailers preceding *G.I. Joe: Retaliation* were not very bright at all. But once the feature started, I saw that its image was coming through a different projection port: the pre-show had been projected with a different system.

The laser prototype's image was very bright and clear, even through the RealD 3D glasses, and had noticeably improved contrast. I didn't have a light meter to measure the brightness, so the best I could do was to go into two other auditoriums to subjectively compare picture quality: the IMAX theater, which was also showing *G.I. Joe: Retaliation*, and a conventional 3D theater showing *Oz the Great and Powerful*. It seemed to me that the laser image showed roughly the same increase in brightness and contrast over the IMAX picture as the IMAX did over the conventional screening.

When I sat close to the screen in the laser demo, I thought I could perceive some very slight laser speckle, mainly as a sort of shiny graininess, but if so, it was barely noticeable and not distracting. I have been told that Christie installed a system to reduce speckle by vibrating the screen slightly.

Burbank's ETX auditorium features the **Dolby** Atmos sound system, which delivered sound that was significantly more powerful and immersive than the IMAX sound system, with thunderous sub-bass and overhead 3D effects that the *G.I. Joe* soundtrack, with its explosions, gunfire, jets, and helicopters, used to full advantage.

BOX:

Christie Laser Prototype:

- Based on CP-4230 DLP 4K projection head
- 72,000 lumens output
- 14 fL reflectance from screen (3D)
- 3,000:1 contrast ratio
- Lasers are coupled via fiber optics to projector head
- Christie Integrated Media Block
- RealD XLW 3D system

AMC Burbank 16 ETX Auditorium:

- Screen: 37x66 feet (11x20 meters)
- 2.3-gain silver screen
- Dolby Atmos sound