The Essential Home Theatre Resource WIDESCREN REVIEW® NEWSLETTER

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- Issue 110 is now shipping
- HD DVD Reviews are now online
- Web subscriptions are still at the low, low price of \$15!

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WELCOME!

Welcome to *Widescreen Review*'s first monthly newsletter. In this, and future newsletters, we will provide featured editorial, reviews, and educational material not found anywhere else—including our print magazine. This newsletter is free to anyone, even non-subscribers to the print magazine, so tell all your friends, whether they are home theatre veterans or novices. All of us here hope you enjoy this new medium for receiving information, and we would love to hear any suggestions or comments that you may have.

Gary Reber

Editor-In-Chief, Widescreen Review

ATTRACTIONS

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COMING SOON TO NEWSSTANDS

Here's a sneak peek into what is coming soon in Issue 110, July 2006 of *Widescreen Review*:

- A special July tribute to some of the companies whose products are still Made In The USA.
- Bill Cruce's review of Toshiba's new HD-XA1 HD DVD player.
- Greg Rogers' review of the new Lumagen VisionHDQ™ video processor.
- The ins and outs of HD DVD's iHD interactivity, explained by its creators.
- A report on HDMI by Bob Rapoport of TRG Marketing.
- An exclusive interview with Microsoft's Amir Majidimehr and Joe Kane of Joe Kane Productions.
- Over 35 HD DVD and DVD picture and sound quality reviews.
- And more...

READER'S

1) Do you plan to upgrade your DVD player to a nextgeneration HD player?

Yes No

1a) If yes, which format do you plan to buy?

HD DVD Blu-ray Both

2) What percentage of *WSR*'s software coverage would you like dedicated to (0%, 10%, 20%, etc):

DVD Reviews HD DVD Reviews Blu-ray Disc Reviews

- 3) What do you think of the content in this newsletter?
- 4) What percentage of WSR's editorial would you like to see contributed to hardware (0%, 10%, 20%, etc)?
- 5) What percentage of WSR's editorial would you like to see contributed to software (0%, 10%, 20%, etc)?
- 6) What else would you like WSR to cover in the future?

Send your responses to nate@widescreenreview.com to enter a contest for a free full-year subscription to *Widescreen Review*.

A World Going "Scope"—The 2.35:1 Imaging Trend In Home Cinema Shawn Kelly Proceeding Danamourh Inc.

Shawn Kelly, President, Panamorph, Inc. www.panamorph.com

Today over 95 percent of widescreen front-projection systems use 16:9 (1.78:1) projection screens. For many people, this makes total sense. The format for most widescreen content, including everything from movies to HDTV to new video games, is in the 16:9 format (or close). But while 16:9 represents the greatest overall volume of widescreen content. the more panoramic format of 2.35:1 is the undisputed king of cinema. Over 80 percent of all blockbuster movies are in this 2.35:1 or "Cinemascope" format, requiring 16:9 projectors to show black bars of unused pixels above and below the 2.35:1 image. In other words, these beautifully artistic movies have been traditionally displayed with significantly less pixels of resolution than a 16:9 HD broadcast of a basketball game. Because of this, highperformance 2.35:1 imaging is one of today's fast growing and most exciting trends in home theatre.

The conceptual process of getting highperformance 2.35:1 imaging is fairly simple. Unmodified 2.35:1 movies already fill the width of a 16:9 projector's array of pixels. Those unused bars of resolution are only above and below the image, not on the sides. So the first step is to use electronic scaling to vertically stretch the image until the projector uses the full height of its 16:9 pixel array and those unused bars get turned into useful resolution. This turns out to be an image 33 percent taller, representing a dramatic 33 percent increase in the total pixels used. Of course, now the content appears tall and thin. So the second step is to use a special "anamorphic" add-on lens to optically reformat the image from 16:9 back to 2.35:1 without sacrificing the benefits of the increased pixels. As always, the actual performance depends on the quality and installation of the components you use. You can read more about some of these details at www.panamorph.com. But even before you start thinking about components, first you have some new decisions to make.

Home theatre systems used to be easy—just buy a 16:9 screen and let your 16:9 projector or possibly an external scaler figure everything out. High-performance 2.35:1 imaging can be just as easy. Permanently install an anamorphic lens onto your 16:9 projector and you've now created a 2.35:1 projector. Just like you would use a 16:9 screen with a 16:9 projector, now you would use a 2.35:1 screen with your "new" 2.35:1 projector.

Of course, until 16:9 projectors have all the necessary scaling built in (some have much of it already), you will need an external scaler to manipulate the various formats properly. What's really nice about the full 2.35:1 projection system is that every format will have the same height (other than the rare movie aspect ratio significantly above 2.35:1). Major motion pictures will fill your entire screen, 16:9 content will be at the same height but will have black "pillars" on the left and right. 4:3 (1.33:1) content will just have thicker pillars. This mimics the large, old-style commercial cinemas where the curtains would adjust from the sides, depending on the format. The simplicity of this approach and the emphasis on highest performance 2.35:1 imaging makes this one of the most popular options for those who primarily want to watch blockbuster movies.



Panamorph's new U150 Anamorphic lens. Panamorph, Inc. is the world's leading manufacturer of high-performance anamorphic lenses for home cinema installations, providing consumer and professional lenses for both fixed and multi-aspect projection systems. For more information visit www.panamorph.com.

Now, if you leave the anamorphic lens on all the time to make a 2.35:1 projector, you force the maximum performance to always represent the 2.35:1 aspect ratio. So when you watch a 16:9 movie, the projector has to fit the image within the horizontal center of the 2.35:1 screen. This means black pillars are formed out of unused pixels on the left and right of the image. For 2.35:1 movie fans this is not that important, since they only occasionally watch 16:9 content anyway. But for those who watch a mix of 2.35:1 and 16:9 content, this loss of pixel usage for 16:9 may not be acceptable. The way around this problem is to only use an anamorphic lens for enhanced 2.35:1 content and

move it out of the way for everything else. This way both 2.35:1 AND 16:9 content will use the full resolution of the projector—the best of both worlds. And these days you can even get fully motorized lenses that move in and out at the touch of a button.

Okay, so instead of a fixed-lens, 2.35:1 projection system, maybe you want this "multi-aspect" system with a moveable lens. If you come to this decision, then vou have another important decision to make. Do you want the 2.35:1 image to be wider than the 16:9 image? In this case you will be using a 2.35:1 screen and optically stretching the image out horizontally. And because you are spreading the image out over a larger area, the 2.35:1 image will have lower brightness and fewer pixels per unit area compared to the 16:9 image. Alternatively, do you want the 2.35:1 image to be shorter than the 16:9 image? This will allow you to use a 16:9 screen since the widths of both formats will be the same. In addition, since the 2.35:1 image is created by optically concentrating the image in the vertical direction, the brightness and number of pixels per unit area for 2.35:1 content will be higher than 16:9 content.

High-performance 2.35:1 imaging is the latest trend, but it is also relatively new. It is not clear which of the above three arrangements will represent the most popular enhanced 2.35:1 home theatre systems. We anticipate that ultimately using a moveable lens on a 16:9 screen will be the dominant mode, since many people will want to retain the full resolution and size of their 16:9 content while getting the highest performance from 2.35:1 content. Coupled with this is the fact that high-performance lenses that create the 2.35:1 format by optically condensing the 16:9 image in the vertical direction can achieve similar or higher performance compared to horizontal expansion lenses, but at approximately one-third the cost due to recent technology advances. But one thing is for certain, no matter which approach you take, a high-quality anamorphic lens and high-quality scaling are the keys to seeing the best motion pictures at their very best. And even current home theatres can be dramatically upgraded just by adding a lens, since many projectors have at least the basic scaling modes. So if you've ever needed a reason to go back and watch all those great 2.35:1 movies in your collection, this may just be the ticket.



Denon **AVR-5805**

Flagship Receiver That's Heavy On Features, Performance, Price!



John Kotches

Introduction

A flagship product is the leading product of its class, and Denon's flagship receivers have always been up there with the best on the market. The goal of a flagship receiver is to provide performance equal to separate components, all inside a single (this time quite large) chassis. Denon has added a number of interesting and (as of this writing) unique features that help define the category of flagship product, including the ability to biamplify all five channels of a home theatre system or drive dual 5.1 systems simultaneously. All of this comes at a price, and the AVR-5805 comes in at a formidable \$6,000.

Thinking Inside The Box

You know you've got a flagship receiver when the box comes complete with UPS warning stickers that indicate that it's a very heavy package. How heavy? Think audiophile amplifier, or well done five- to seven-channel power amplifier weight. Okay, I'll admit that isn't a particularly real answer, so the actual answer is right on 100 pounds. It does drop a few pounds to a "svelte" 92 once you shed the packaging.

Besides its heft, the AVR-5805 is about a foot tall, which is roughly twice the height of the typical receiver. When you pack a massive toroidal transformer, capable of delivering 10 channels of output at 170 watts per channel into 8 ohms, you're going to need a

little height. Add in enough connectivity to hook up everything you're realistically going to need, and you get another reason for the height of the AVR-5805. Even though the AVR-5805 didn't have a tremendous amount of breathing room in my racks, it never overheated during operation. However, at the end of a few louder listening sessions it was very warm to the touch. That's the downside to such a large chassis; it's tough to accommodate the airflow requirements without special consider-

More Connections Than O'Hare Airport

If you think of the hub and spoke airline system, the hubs are the central locations from which numerous connecting flights go through. Chicago's O'Hare airport is one of the busiest around for this method of shuttling air passengers around the U.S. It's an odd, but apt analogy if one thinks of the AVR-5805 as the hub of your A/V system and the various components as the spokes in that system. Why the O'Hare reference? The AVR-5805 has the most fully loaded back panel I've run

Just about any jet (connection type) can be serviced here at the very busy airport. There are numerous inputs to handle the most complex systems. You will need digital audio capability, and coaxial inputs are available aplenty with six assignable inputs. TOSLink is not shortchanged with five assignable inputs. For those with IEEE 1394 players, a pair of 400 Megabits per second connections are provided to connect into an IEEE 1394 daisy chain. If you have a Denon Link equipped player, a single Denon Link input (3rd edition) via RJ-45 is on the back panel. Those looking for support for next-generation formats (HD-DVD and Blu-ray) will be pleased to hear that the HDMI inputs are v1.1 compatible (but not v1.3) and can accept Dolby® Digital, DTS® Digital Surround™, and uncompressed PCM

SPECIFICATIONS

General
Inputs: 8 A/V (S-video, composite, analog stereo L/R); coaxial digital (6); TOSLink optical (5); analog surround (2); stereo audio (3); component video (6, assignable); DVI (1 assignable); HDMI (3 assignable); firewire (2); Denon Link (1); Ethernet (1) Outputs: component video (3); HDMI (1); DVI (1); speaker level (10); preamp surround out (1); zone 3 stereo(1); video tape loops (4); audio tape loops (1) Digital Decoding: Dolby Digital®; Dolby Digital Surround EX"; Dolby ProLogic™; Dolby ProLogic IIx; DTS® Digital Surround™; DTS-ES™; DTS:Neo6™; HDCD™

Dimensions (WHD In inches): 17 3/32 x 11 1/32 x 19 7/8 Weight (In Pounds): 92 Price: \$6,000

Manufactured In Japan By:

Denon Electronics (ÚSA) P.O. Box 867 Pine Brook, NJ 07058 Ph: 973 396 0810 Fax: 973 396 7455 www.denon.com

streams as well as digital video.

Analog inputs are well represented, with eight inputs for analog stereo components. For those with dedicated DVD-Audio and SA-CD players, dual multichannel inputs are provided. One of these inputs is 7.1 capable, so if you'd rather use an analog output from your next-generation high-definition optical player, you can take it in directly with the AVR-5805.

Video switching is also generous, with corresponding S-video and composite video inputs for each analog stereo input. Further, there are five assignable component video inputs for those with a need for component video switching. During my testing, I could find no visible degradation using either test patterns from HDNet or Video Essentials when compared to direct input to the display. It is possible that there is measurable degradation. but I'm not equipped to do so at this time. The AVR-5805 also has switching capabilities for digital video, with a single DVI input and three HDMI inputs.

Getting all the signals out of the AVR-5805 is quite flexible as well. The AVR-5805 features



10 loudspeaker level audio outputs, which can be used for bi-amping a five-channel main loudspeaker system, or driving a 7.1-channel loudspeaker system plus a stereo second zone (default configuration). Line level outputs for Zone 1 with 7.1 channels are provided for those who feel the need to purchase an external amplifier to drive their loudspeakers.

Video outputs are also incredibly versatile, with dual-zone outputs for composite, S-video, and component video. DVI and HDMI outputs are simultaneously active but only show the Zone 1 video. Video cross conversion and scaling is available up to 1080i, with caveats for analog outputs. On component output, scaling is limited to 480p when copy-protected input is detected. This is not restricted to the AVR-5805, and it's something I've complained about in the past. Scaling to 1080i is available via digital output (DVI/HDMI) for all inputs. Video cross conversion between component, composite, and S-Video is possible but only with 480i signals. No downscaling is possible for 480p and higher signals or digital video inputs. During the review period, Denon announced an upgrade to their AVR-5805 and AVR-4806 models enabling the included Ethernet port (not tested) and 1080p scaling for \$500. Details can be discussed with your Denon dealer.

The Digital Works Inside

The AVR-5805 has one quite unique feature. As mentioned above, it has ten main output channels and is capable of simultaneously running two independent 5.1 zones. I don't know of another receiver on the market that's capable of driving multiple surround systems. My house isn't outfitted to test out the dual surround mode, as I don't have loudspeaker cables that are long enough to reach between my multiple surround systems.

The AVR-5805 uses a trio of TI TMS320DA610 (Aureus) DSPs for the first zone as the DSP engine. This DSP has a remarkable amount of processing power, measured in MIPS, with an astonishing 1,800 of them per DSP for audio processing. All of that power is not particularly useful unless you can do something with it—kind of like a superhero with no one to save.

Enter Audyssey Laboratories, founded by one of the giants of the business, Tomlinson Holman. Audyssey has developed proprietary equalization technology used in the AVR-5805 (and other Denon receivers) to improve the performance of the system. Based on extensive research by Holman (et al) at the University of Southern California, the Audyssey EQ system as implemented is a 512-tap Finite Impulse Response Filter, which



is used to help bring the measured response of each loudspeaker to a specified target. The more taps for the filter, the more precision available at the lowest frequencies. We'll talk about the subjective results later.

Audyssey's EQ system is licensable, and is available at several levels. In the AVR-5805, the highest level, MultEQ XT is licensed. MultEQ XT provides frequency response filtration based on target response curves. There are three response targets with MultEQ XT: flat, front, and Audyssey.

The Flat EQ curve is self-explanatory—it builds a response curve that brings each loudspeaker as close as possible to a flat target curve. The Front EQ curve builds an average response for the front L/C/R set then builds a corresponding filter for surrounds (two to four depending on what you have defined) and aligns the responses as close as possible to the front soundstage.

Finally, there's the Audyssey EQ curve, which does not have a flat target response. The Audyssey team has built this curve around a subjectively pleasing non-flat response curve. Target response for this curve is to have a flat response out to 4 kHz, with a slight drop of -2 dB at 10 kHz and -6dB at 20 kHz.

Besides providing target EQ (or none), as selected by the user, MultEQ XT provides the ability to utilize spatial averaging across multiple locations within the room. In the AVR-5805 (and the AVR-4806) this spatial averaging technique applies to up to eight seating locations. The goal is to improve the performance for not just one seating location but for the entire listening area. By utilizing spatial averaging, the experience is improved for all in the

room, not just optimized for the "money seat." Still, if you want, you can optimize performance just for that one absolute "sweet spot."

The second zone uses a quite powerful DSP in its own right, the Analog Devices Hammerhead SHARC processor. Not quite as impressive as the Aureus, it still handles all processing chores required for a fully functional 5.1 Zone 2 if required.

Digital to analog conversion is also provided by high-quality parts, in the form of the Burr-Brown PCM1792 DACs. To handle ten channels of output, a quintet of these is required, and indeed that's what is installed. The PCM1792 is DSD capable for SA-CD inputs via either FireWire® (IEEE 1394) or Denon Link 3rd edition and PCM inputs at up to 24 bits of sampling depth and 192 kHz sampling rates. The rated signal to noise ratio is 132 dB, which indicates that the DACs are capable of resolving up to 22 bits of data, which is as high as any other DAC on the market.

The Overture (Setup)

Some time needs to be spent discussing configuration/setup of the AVR-5805. Because of the complexity of the receiver, it has a fairly substantial range of configuration options. Rather than discuss each one in excruciating detail, I'm going to cover the highlights.

The first setup submenu is for Auto Setup/Room EQ. Here, you can have the system measure speaker distances, and phase and set channel trim levels for the primary zone/system. You start by connecting the included microphone and then run the automated setup routine. There are options for a



fully automatic setup, options for setting up the default EQ selections for surround modes, options for direct settings, and optionally hooking the microphone to the back of the receiver. During automated setup, a series of tones is emitted for each loudspeaker, and the system determines your loudspeaker configuration. Following this, MultEQ measurements occur, where the microphone is moved to (up to) seven additional locations so that spatial averaging can be applied to allow you to get the best possible results. I found the channel calibrations to be within 1 dB of my SPL meter, with distances calculated by the AVR-5805 to be within six inches of correct. Both of these are outstanding results.

A separate menu allows for manual loudspeaker configuration, audio input setup, advanced playback, and others. For now, I'd like to focus on the Video Setup menu. Within the Video Setup menu, you can assign any of the component video and DVI or HDMI inputs to a specifically named input. Also available are settings for the video scaler, with selectable options for output at 480i/576i, 480p/576p, 1080i, or 720p. As with other receivers using a Faroudjabased scaling solution, if an analog output is used, scaling on component video outputs will be limited to 480p/576p, depending on your local video standard for any copy-protected content. This is a requirement of the chipset in use. Analog video inputs can be scaled up to 720p or 1080i if the output is sent via the DVI/HDMI port. I personally find this artificial limitation frustrating but understand that this is not under Denon's control. Audio delay for lip synch on video processing and On Screen Display are also controlled through this menu.

A Night At The Show

I'm going to start off not by specific observations but rather with a general one. Overall, there is no question that in most rooms, and in many systems, the Audyssey EQ system on the AVR-5805 is a great addition. The AVR-5805 spent time in both my secondary system and primary system (for several days). In the secondary system, which is configured as a typical home theatre, the Audyssey curve provided the best results. This room does have issues with a hardwood floor that is mitigated somewhat by an area rug, and some windows at reflection points. As I said, it's fairly typical in terms of the system environment. In my primary system I was torn between the Audyssey curve and no EQ at all. The primary system has significant acoustic treatment, and I found the Audyssey curve most pleasing when discs had excessive high-frequency energy, that is they erred on the side of brightness. In both rooms I found that the subwoofer EQ portion of Audyssey was less effective than alternative options. What were the alternatives? The Velodyne Digital Drive subwoofers and SMS-1 subwoofer management system provided a better low-frequency experience for me. Engaging this system minimized the effects of Audyssey's EQ on the low-end where it was relatively ineffective in dealing with room nodes in my secondary system. All comments are based on performance in my secondary system.

I use Diana Krall's *Live In Paris* as test material constantly, and I turned to this disc for assistance in assessing performance. "A Case Of You" is a track that has lots of sibilance, and I found that the AVR-5805 helped to minimize this with the Audyssey EQ curve engaged. In addition, there is an outstanding sense of envelopment and a greater consciousness of the utilization of surrounds to bring you a sense of the concert hall. On "I Love Being Here With You," Anthony Wilson's acoustic guitar timbre is spot on, and each instrument is locked into space solidly. There were no deleterious effects from having the lead vocal spread across the front loudspeaker array.

Open Range is a great western, and the soundtrack has several scenes, which are used for demonstrations everywhere. Chapters 1 and 7 feature exteriors with rain, and the AVR-5805 does a spectacular job in immersing you into the environment of the film. It starts with thunder in the distance, and when the rain comes, it sounds like you are literally inside the storm. In the opening, it is clear that the dialogue comes from under the tarp, while the rain is pushed further back into the soundstage. Chapter 13 is the prelude to the gunfight, and here the AVR-5805 does its job in another way, showing the locations where ADR drop-ins occur. That's the downside of an outstanding component; it can point out flaws in source material when it's there. The score is always rendered beautifully, and I especially enjoyed the timbre of the trumpets used throughout. Of course, the gunfight contained all of the requisite energy, with the best moments occurring as Charlie was firing his Winchester out in the streets, with shots echoing throughout the town. I'm almost certain that the low-end was goosed on these gunshots, but I haven't done much live recording of gunfire!

It's hard to believe that Boz Scaggs' *Dig* was released roughly five years ago as a CD+DVD-Audio pack, but it has aged rather well. "Miss Riddle" has a horn section that is recorded in a warm, round tone rather than

the typically strident way that horns are typically recorded, and the AVR-5805 got that timbre spot on. Scaggs' vocal timbre was also outstanding. There's a surround effect (I call it a spinner), which travels around the mix, as do some chimes, and in both cases the AVR-5805 did an admirable job of seamlessly blending the front and back soundstages. The one negative comment I had was that there's a harmon-muted trumpet solo during this song, and in a passage where the player goes both louder and higher on his horn I felt the instrument lost some of its bite. This is a very minor complaint, but it was there to my ears, nonetheless

For SA-CD, I used Elton John's Goodbye Yellow Brick Road where the opening track "Funeral For A Friend/Love Lies Bleeding" run together into an 11-minute masterpiece. This was one of the great surround mixes of 2004 and has rightfully received great critical acclaim. In the introduction, the wind whooshes around the stage as the church bells ring from front to back of the mix. At roughly one minute, there's a nice right/left moment with synthesizers that is punctuated nicely by the AVR-5805. Cymbals ring out clearly from the drum kit. Excellent impact occurs at the 3:30 mark while castanets jump out for their brief exclamations to the mix. As the purely instrumental "Funeral" portion closes down, cymbals are panned throughout the mix, and the AVR-5805 depicts this very well. In addition, Elton John's rich piano chord voicings are well-depicted. As the energy builds, the air guitar/piano/drums urge gets stronger and impossible to resist! During the first chorus, the background vocals pop into the soundstage with spectacular effect across all channels putting them all around you in a holosonic™ presentation.

All Good Things

The Denon AVR-5805 brings a solid yes answer to the question; can a single component provide performance that equals separates? There's no question that the AVR-5805 is worthy of being considered a high-end product. Those who are openminded will ignore the fact that this is "just a receiver" and be rewarded with some stateof-the-art technology, which just happens to sound incredible. How much did I like the AVR-5805? Well, I didn't exactly buy this sample, as its price tag is more than I have for my secondary system. I did buy a close relative, the AVR-4306. It contains most of the features, but doesn't have the same power output (or weight).

Stewart

Filmscreen Corporation®

Roy C. Stewart & Co. was established in 1947 in Torrance, California. Originally producing one lace and grommet screen per week for the movie industry, they were soon providing screens to Walt Disney. In 1953 the company merged with Trans-Lux Corporation, and 10 years later, in 1963, Roy C. Stewart & Co. bought out Trans-Lux and became Stewart Filmscreen Corporation.

In 1992, Stewart Filmscreen, now a third-generation family business, bought a division of U.S. Precision Lens in Amelia, Ohio, where they manufacture single-element fresnel/lenticular rigid rear screens up to 180 inches diagonal, as well as video screen products.



The year 1993 took them abroad, where they opened an international office in Denmark, followed by another office in Singapore in 1997. And in 1998, Stewart Filmscreen Corporation opened their World Headquarters facility in Torrance with a 5,000 square-foot

state-of-the-art training center at their impressive five-acre factory.

There is a big difference in projection screens of today compared to yesterday's screens. A problem developed during the '60s when material commonly used for filmscreen was put on restriction by the government because it was also being used to make war materials for Vietnam. Stewart faced the challenge and developed, in-house and with the help of suppliers, a new vinyl resin screen. That development opened a door to new screen markets—large roller screens, snap-type screens and frames, and large portable front and rear screens for exhibits, rock concerts, theme parks, and expositions. It also led to better theatre screens and the high-end home theatre market.

Screen technology can be complicated and confusing. What may be the right screen for one room may be the wrong screen for another. The big difference in today's screens is the change in the projectors. Screens are application-driven and are to video what a loudspeaker is to an audio system. What Stewart Filmscreen is all about is image fidelity. Together with the implementation of Stewart's new screen technology, combined with their U.S. manufacturing facility and training center, Stewart Filmscreen is more than just a household name. This Academy Award®-winning company, and family-owned business has more history in its facility and incredible passion behind their products. For more information, phone Stewart Filmscreen at 310 784 5300 or visit www.stewartfilmscreen.com.

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