

Optoma has rejuvenated its LED-based HD91 projector. **John Archer** wonders if it can light up his life

# Hours of home entertainment

**THE LAUNCH OF** Optoma's original HD91 projector in 2014 was a big deal. After all, it marked the first time ultra long-life DLP LED technology (Optoma reckons the HD91+'s LED light source will last 20,000 hours) had been applied to a serious home cinema projector that didn't cost as much as a new car.

For such a ground-breaking model it also gave a pretty good account of itself performance-wise, only being let down by a lack of contrast and brightness versus similarly priced 'standard' lamp projectors.

Happily Optoma has decided to try and fix these issues with the cunningly named HD91+ – a new model that increases brightness by nearly a third to 1,300 Lumens, and delivers a claimed 600,000:1 contrast ratio versus the original HD91's 500,000:1. Unfortunately these increases have been joined by a price bump – the HD91+ is currently £3,500 whereas the original HD91 was nearer £3,000.

Still, at this reasonably serious level of the market, home cinema fans won't mind paying a bit extra if the results are worth it.

## The allure of LED

As well as that fabulously long lifespan, the HD91+'s DLP LED light engine promises superior colour stability versus typical single-chip DLP projectors, and a far lower – potentially negligible – rate of picture quality reduction over time versus rival lamp-based beamers. Plus LEDs don't require tedious warm up and warm down times.

Setting up the HD91+ reveals it to be a flexible beast. It's optical zoom runs to a very generous 1.9x, while wheels positioned – bizarrely – on the projector's underside cater for horizontal and vertical image shifting. The onscreen menus, meanwhile, provide in-depth colour and gamma management systems, as well as plenty of control over the HD91+'s dynamic contrast and surprisingly effective PureEngine image processing tools.

A Dynamic Black system has three levels of potency, or you can deactivate it and manually select your own consistent level of light output. The PureEngine system, meanwhile, has colour enhancement, sharpness boosting and motion improvement elements, all of which can be individually tweaked or turned off entirely. Don't opt for the latter option straight away. I found all these adjustments turned out to be quite usable, at least on their minimum settings.

The home for all this impressive PJ tech is a bold-looking enclosure. The HD91+ arrives in an elongated chassis with lots of artful angles and curves – and the large, arced lens-housing raises hopes of plenty of quality for the optical system beneath.

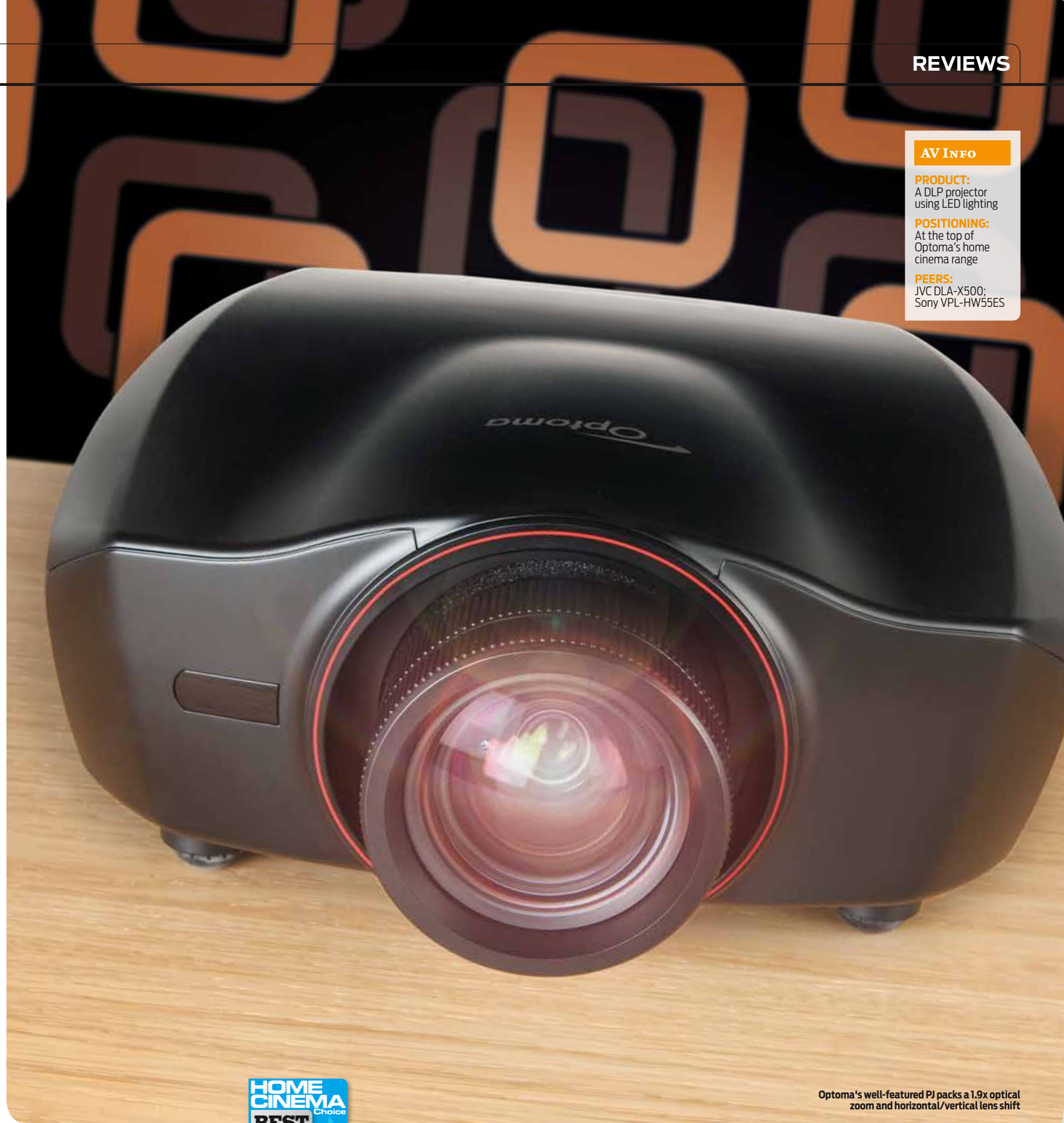
## Second-generation success

The HD91+'s picture quality instantly struck me as substantially improved over the original model. Run-throughs of *Oblivion* and the last *Harry Potter...* film immediately looked brighter and more dynamic, thanks to an obvious increase in light output and a noticeably deeper black level response.

These new strengths make the HD91+'s performance look much more in line with that of other projectors in its price range. You no longer feel as if you're paying off some of Optoma's R&D budget with your £3,500; now you just feel like you're paying big bucks for a high level of projector performance.

The HD91+'s core brightness and contrast improvements make it easy to appreciate strengths this PJ shares with its predecessor. Imagery is exquisitely detailed and sharp, >

The backlit remote grants quick access to the PJ's picture tools



## AV INFO

**PRODUCT:**  
A DLP projector using LED lighting

**POSITIONING:**  
At the top of Optoma's home cinema range

**PEERS:**  
JVC DLA-X500;  
Sony VPL-HW55ES



Optoma's well-featured PJ packs a 1.9x optical zoom and horizontal/vertical lens shift





Rear-mounted connections include twin HDMI inputs

revealing plenty of subtle information. This detailing even extends to dark scenes like Ron and Hermione's post Horcrux-destroying snog, where the HD91+ produces reference-grade levels of shadow detail.

Sharpness doesn't appear at all forced. There's no sense of any contrived edges or fizzing noise, even with *Harry Potter...*'s deliberately grainy look. The grain is still visible, but only in an organic way that never starts to 'take over' the picture, which it can with PJs and TVs that push the sharpness issue.

Further contributing to the HD91+'s sharpness is some excellent motion handling. There's minimal judder or blur to worry about even if you don't use the motion processing system – although as mentioned earlier you can confidently set Optoma's PureMotion system (on its lowest power setting) to sharpen things up a touch.

**'Equip yourself with Optoma's 3D transmitter and active spex and you'll savour cinematic immersion'**

Colours, for the most part, are improved here. A little calibration is necessary to remove a pinkish tone from dark sequences and a slightly green tone to very bright scenes, but you can soon get pictures enjoying a striking blend of vibrancy and accuracy. It portrays the often quite difficult skin tones of both *Oblivion* and the Hogwarts wrap-up with subtlety; there's no sign of any banding, blocking or Harley Street levels of plasticity.

The HD91+ is no slouch with 3D, either. Equip yourself with Optoma's optional transmitter and active spex and you'll savour cinematic immersion – pictures are detailed, crisp and free of crosstalk. It's not the brightest experience around, but markedly punchier than that of the original

HD91, and clarity and colour accuracy compensate for the lack of luminance. The only weird thing is that I had to invert the 3D Sync setting to get 3D looking right – something I've never had to do with any other brand of 3D product.

While the HD91+ spends much of the time delivering gorgeous visuals, it does have one Achilles' Heel: its dynamic contrast system. Without using any of the three provided Dynamic Black settings, the HD91+'s contrast is only average for a £3,500 projector. Yet if you call the Dynamic Black settings into play, while the black level response increases dramatically, the picture's light levels start to look unstable as the contrast engine reacts too slowly to changes in the image content. Optoma says this slowness is deliberate, as the system waits to see if a brightness shift is really necessary. But all I can say is that this slowness renders the most powerful two Dynamic Black modes essentially unusable for the majority of movies.

Fortunately the lowest-powered Dynamic Black mode saves the day. While it does still cause occasional distractions during the most extreme transitions, these moments are rare enough to make the Dynamic Black 1 setting tolerably stable while giving the images that extra bit of punch they need to go from very good to really outstanding.

**More than just a plus**

Often when new kit arrives with a '+' sign tagged onto the end of the name of a previous model it means it only improves slightly on what's gone before. With the HD91+, though, Optoma has delivered a major leap forward. I think there's still room for improvement where the dynamic contrast system is concerned, and in an ideal world the HD91+ would be a touch cheaper to leave more pricing water between it and JVC's eShift models. But the combination of a vastly improved picture quality and LED technology's practical advantages make the HD91+ a uniquely appealing contender ■

**SPECIFICATIONS**

- 3D:** Yes. Active
- 4K:** No. 1,920 x 1,080
- CONNECTIONS:** 2 x HDMI; D-Sub PC port; component video input; composite video input; 2 x 12V trigger outputs; 3D Sync transmitter port; RS232 control port; USB update port
- BRIGHTNESS (CLAIMED):** 1,300 Lumens
- CONTRAST (CLAIMED):** 600,000:1
- DIMENSIONS:** 345(w) x 161.5(h) x 443(d)mm
- WEIGHT:** 7kg
- FEATURES:** DLP LED projection system; 20,000-hour claimed LED life; anamorphic lens support; full colour management; PureEngine video processing; vertical (+/- 60%) and horizontal (+/-10%) image shift; vertical keystone correction; 1.9x optical zoom; 1.5-2.89 throw ratio

**HCC VERDICT**



**Optoma HD91+**  
 → £3,500 approx → [www.optoma.co.uk](http://www.optoma.co.uk)  
 → Tel: 01923 691 865

**HIGHS:** Gorgeously detailed pictures; no need to replace any lamps; excellent in terms of setup flexibility and calibration  
**LOWS:** Dynamic contrast system is clumsy; it's a touch expensive; awkwardly placed image shift wheels

