

# NO STRINGS ATTACHED

A full-HD 3D projector, with wireless HDMI, from a top name in projection, for \$2799? This new Epson jumps several generations.



**Epson**  
**EH-TW6000W**  
**AV projector**  
Price: \$2799

**T**his Epson AV projector is extraordinary for two reasons. First, it offers front-projection 3D at a cost some two thousand or more dollars lower than the alternatives. Second, it introduces a radical new way of getting the image from your equipment to the projector.

## EQUIPMENT

First, the cost. This unit has a recommended retail price of \$2799, and that includes the cost of two pairs of 3D eyewear. The RRP of other full-HD 3D projectors (as I write) range from the \$4179 of Panasonic's new offering to \$10,000 and above. Epson will also have its own higher-priced, more highly specified projector models out before this appears in print, but I suspect that many purchasers will find this price of this unit particularly sweet.

Sweeter still in price is the Epson EH-TW6000 (i.e. without the concluding 'W'). It's the same as this projector, except it costs just

\$2499 and comes without the special feature denoted by that 'W': wireless. More precisely, 'WirelessHD'. This is a new standard agreed between most of the major electronics vendors for getting HDMI content from a source to a display without wires. When it comes to TVs, this will often be unimportant. But front projectors are often inconveniently located for wiring. The attraction in being able to send the signal wirelessly is obvious.

A couple of years ago there were a couple of TV makers who flirted with wireless connections. These tended to be limited to 1080i, and their market failure was obvious by the absence of follow-up models the next year. WirelessHD, however, supports full 1080p all the way up to 1080p/60, and including frame-packed 1080p/24 3D. It operates in a super high frequency 60GHz band. This has the advantage of having very limited range and penetration. Advantage? Well, yes. You don't want to find yourself inadvertently watching your neighbour's programming choices. The system is designed to get around obstructions to line of sight between the transmitter and receiver by means of multipath reflections.

With the EH-TW6000W, the receiver is built into the projector, while the transmitter (which is included in the purchase price) is a smallish cylinder into which you plug the output of your AV receiver or other source. This has only one HDMI input.

The projector still has its two regular HDMI inputs, plus component and composite video, USB and stereo audio. This last was a surprise. The projector has two small speakers, each with ten watts of power, built into the back. So if you wanted you could just connect the unit directly to a DVD or Blu-ray player and have it produce the sound for you.

The projector uses Epson's traditional three LCD panel active matrix technology and offers a long lamp life of 4000 hours and output brightness up to 2200 lumens. It employs a dynamic iris to allow deeper black levels than are natively supported by the panels, with Epson specifying a contrast ratio of 40,000:1.

As mentioned, the projector comes with two pairs of active 3D liquid crystal shutter glasses. By coincidence the Toshiba active 3D TV reviewed elsewhere in this issue was also present at the same time as the projector, and it turned out that its shutter glasses worked with this projector, and the Epson with the Toshiba, with no noticeable loss of performance.

## PERFORMANCE

The projector has a zoom range of 1.6:1 for its lens, but no vertical or horizontal lens shift, so some care should be taken in working out precisely where to locate it in the case of permanent installation. For a 100-inch (2.54 metre) 16:9 screen, the projector needs to be at a range of between 2.95 and 4.8 metres.

Of particular interest, of course, was the wireless transmission and its reliability. The transmitter has a green light to indicate that it is powered up, and an amber light to indicate connection status. When establishing a connection, this flashes gently, and remains steady once the connection is in place.

I had the transmitter with my gear about four metres away from the projector. Its location was such that the line-of-sight between the two was frequently interrupted by human bodies, either passing through or just standing there. And they made no difference at all. The only time that communication was ever interrupted by a physical obstruction was when I set out to do so. I put a thick broadsheet newspaper over the top of the transmitter, and even that didn't stop it. But it did reduce the signal strength enough so that when I then stood in the way, comms were lost and the picture disappeared.

So I'd say that reliability was one hundred per cent, except that on three separate occasions as I was sitting quietly watching a movie (1080p/24 in all cases), the picture stopped and the comms cut out for no apparent reason at all. The system immediately set to work to re-establish communications, and did so successfully, but it did kind of interrupt the flow of the movies. Mind you, that was three occasions in something like 130 hours of use, and may well have had something to do with my particular set-up.

Sometimes on WirelessHD, the Epson seemed to take a long time to re-establish sync when the video standard changed — indeed, it was somewhat of an adventure changing screen resolution. Sometimes it took 10 seconds, sometimes 20, sometimes 32, once it took 48 seconds. All that was switching between 1080p/50 and 576i/50. There was no clear pattern to this. In general, things worked smoothest if I switched off the transmitter's power when the system was not in use, and then on again just before firing up the rest of the system. With a direct HDMI cable connection, switching between those same video standards took about eight seconds.

The USB socket on the projector was almost overlooked, because often on projectors these are generally for the purpose of control, or perhaps firmware upgrades. But this one was for actual use by an actual owner. You can plug in a USB memory stick with JPEG photos, or a compatible digital camera, and the projector will display the photos, and rather beautifully. The scaling to the native 1080p resolution was excellent, and both colour extremes and gradients were delivered magnificently.

It would have been nice if the projector also supported the MPO 3D 'still' format, but it didn't. If you have a 3D still camera, you will need to use the camera itself or a separate device to deliver the pics in frame-packed 3D format to the projector.

But the main game is watching movies and video, of course. If this projector did not support 3D, or offer a wireless connection, it'd still be good value for money. The video processing was fine and black levels, while not the very deepest available, were perfectly respectable. A full black screen tended a little towards blue-black, which made it seem even darker than it actually was.

There was, from time to time, an audible little flutter of the dynamic iris as overall picture brightness changed, but I generally only noticed it when the system's sound was muted. The fan itself in the default 'ECO' power consumption mode was quiet, and even in that mode the picture was nicely visible on my screen even when under fluorescent tube lighting. (Not that we'd ever actually watch content that way, but it indicates the amount of visible energy this projector can generate.)

The colours were natural and, where required, rich. The unit did a pretty decent job of detecting film/video status on interlaced 576i/50 content, and an excellent job on 1080i/50 content. Indeed, it put many more highly-priced projectors to shame on this front. There was no force-film mode (one of the settings is labelled 'Film/Auto'), but I'd be happy using it in the absence of a very good processing circuit in a Blu-ray player.

The projector does not offer a frame-interpolation motion smoothing system, so occasionally there was a touch of smearing through full camera pans. But, then, there were no processing-created artefacts either.

The 3D performance was all right. Epson has bumped up the timing of the display to 480Hz from 240Hz in order to shorten the blanking intervals of the active 3D eyewear. These periods where both eyes are blanked out are intended to allow the picture to change fully from left to right, and right to left, before allowing the respective eye to see the picture.

Shortening that period allows greater overall brightness since the proportion of the time in which the glasses are fully dark is reduced. And indeed that was the case. The projector bumped up its brightness as well (so the fan ran faster).

However, there was fairly visible crosstalk some of the time, especially on content with cleanly defined edges with a marked 3D effect, such as computer animation. Sometimes the crosstalk was of sufficient intensity to collapse the 3D effect completely, but most of the time it didn't reach this level. On the Blu-ray 3D version of *Cars 2*, the ghosting receded below the level of my consciousness for the most part, leaving an effectively convincing result.

The 3D glasses worked reliably in my set-up, with the IR sync transmitter bouncing its signal from my projection screen. The projector has a port for connecting an optional extension sync transmitter, should it be required. No 2D-to-3D conversion is offered on this model,

which is no great loss. The projector also offers a 'split-screen' mode which allows it to show two sets of content side by side. Only one of these, though, can be delivered via HDMI or WirelessHD. The other must be analogue, which reduces its usefulness somewhat.

We suspect that *Sound+Image* readers are unlikely to be much interested in the built-in audio capability, though it works well enough, with a sound quality somewhat like a TV set. Of course, the sound is coming from the wrong direction (since the projector is unlikely to be anywhere near the projected picture). The unit does support the Consumer Electronics Control (CEC) standard, so depending on your equipment you may be able to have other stuff control it. Likewise, you can use its remote control's volume and mute controls on your AV receiver.

## CONCLUSION

The Epson EH-TW6000W is exceptional value for money. The 3D is OK and the 2D is pretty good, regardless of the price, and the wireless connection is something which will invite a whole new range of people — who have previously been put off by a horror of having to traipse cables around the place — into enjoying true large-screen home cinema. Stephen Dawson +

## VERDICT

**Epson EH-TW6000W**  
**AV projector**

Price: \$2799

- Exceptional value for money
- WirelessHD connection
- Good overall picture quality
- Some crosstalk on 3D

PROJECTION TECHNOLOGY: 3 x 15.5mm Polysilicon TFT active matrix LCD panels  
RESOLUTION: 1920 by 1080 pixels  
ASPECT RATIO: 16:9  
LAMP: 230W UHE-E-TORL  
LAMP LIFE: 4000 hours  
CONTRAST RATIO: 40,000:1 (dynamic iris)  
BRIGHTNESS: 2200 ANSI Lumens  
INPUTS: WirelessHD (1 x HDMI on transmitter), 2 x HDMI, 1 x component video, 0 x S-Video, 1 x composite video, 1 x stereo audio, 1 x D-SUB15, 1 x USB  
CONTROL: 1 x RS-232C, 1 x External 3D IR port

DIMENSIONS (whd): 420 x 138 x 365mm  
WEIGHT: 6.2kg  
WARRANTY: Three years (One year on lamp, or 750 hours of use, whichever is first reached)

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