

It's super-thin, comes with a separate media box, and claims to be friendly to the environment. But it's wireless Full HD that's the USP. **Rik Henderson** explains all...

Let's dispense with the foreplay, the Z1 streams 1080p24 wirelessly. Full HD Blu-ray video with no wires whatsoever. That's enough. Job done. Five stars. Now comes the padding.

Sitting at the top of Panasonic's Viera TV range, in both price terms and specification, the P46Z1 is an object of tech beauty. It's sleek, svelte and unashamedly trendy. A metallic finish equals high-end in the TV business these days. And I approve.

To be honest, though, the Z1's aesthetic elegance comes as a bit of a shock. Panasonic is not generally known for its fashion sense. Cutting-edge kit, yes. Dependable devices, more often than not. Indeed, the company puts a lot of stock in functionality and we applaud the gesture – as the swathe of HCC Best Buy awards testify. However, as natty as they perform, they're normally shrouded in blocky, placky, black boxes. Built by inventors, designed by undertakers.

This set bucks that trend and sticks two fingers up at the gloss black purists. There's still a wee nod towards the company's ebony leanings with the adoption of two, oddly-placed, black strips down either side of the glass, but with the speakers attached, the screen is handsomely and entirely framed in brushed aluminium.

It's also super skinny. In fact, at 24.7mm at its leanest point, it is easily the thinnest plasma panel I've seen (to buy, at least). It's LED TV thin, which is impressive for a plasma. There are even some that would buy this TV simply because of its waif-like nature, but they would be best advised to read on, there is a drawback...

The WirelessHD functionality requires the use of a transmitter and >





The TX-P46Z1's glistening bezel is a rare, silver-clad excursion for Panasonic - but note the ugly black wireless HD receiver hanging down bottom left...



Evolving the plasma

The TX-P46Z1 is the latest in a long line of Panasonic PDP innovations...

2004



The TH-42PE30B was the first VIERA plasma TV and was launched to considerable

acclaim. It cost £3,700 at the time, featured a standard def panel and carried three Scart inputs...

2005



At a whopping 65ins, the TH-65PV500 was one of the first monster plasma screens

to hit the UK. It cost a staggering £9,000 on launch and also received a coveted Best Buy award in HCC 127.

2006



However, if we thought 65ins was massive, we were soon to be blown away by the gargantuan

103in 103PF9. It was awarded four-stars in HCC 139, and had to be craned into our reviewer's testing room!

2007



It was back to more manageable screen sizes, when Panasonic launched its

first Full HD 42in plasma panel (TH-42PZ700). We reviewed the 50in version in HCC 146.

2008



Who says size doesn't matter? In 2008, we saw the largest plasma TV yet unleashed onto

the world. The 150in panel sports a 4k2k resolution and was way too big to get into the HCC tech labs.

2009



And so we come bang up to date with the TX-P46Z1, the company's most svelte,

thin production plasma by far.

receiver, and the latter is bolted onto the back of the display. Therefore, the footprint, when mounted, is greater than expected – it sticks out approximately 50mm, twice the distance. That's still half the depth of, say, the Philips Cinema 21:9, but it undermines certain boasts.

In addition, the WiHD bolt-on isn't an aesthetic match to the bezel. It sticks out as a plastic anomaly. The end result is much like seeing Megan Fox with a massive, pustulant boil on her chin – you still admire the bodywork, but your eyes keep drifting towards the glowing lump.

Perhaps, though, that's a small price to pay for no wires, and those who are more adventurous than me may attempt to detach it and hide it out of sight, even though that's essentially against the point (it will still need to be wired to the HDMI port on the panel). It also doesn't look so bad when the set is sat upright on its stand (on a table), so maybe the add-on is not such a turn-off after all. It certainly does the job.

In the air tonight

Streaming Full HD video and high-res audio is no mean feat. It takes considerable bandwidth to ensure a constant and clean feed of 1080p24 footage over 10 metres, yet the gizmos here perform that task admirably. Not once during testing was the signal interrupted or hampered by additional artefacts. Admittedly, I remained within the recommended catchment area, but it is highly unlikely that, with a set like this, you'll set the separate media box more than 32 feet away.

And anywhere within that area offers as clean an image as a normal HDMI cable is capable. That's it. There's no more to it than that. To be honest, it's weird being so impressed by something actually doing what's it's meant to, but I am. And you will be too.

Of course, this isn't the first wireless HD TV system we've tested, Sony's ZX1 has that honour, but that was only capable of streaming a maximum of 1080i video. This Panny beats it hands down in a game of AV Top Trumps. It also has the better media box, by a country mile.

WirelessHD aside, the separate media box is abundant with features and talents.

A Freesat tuner is par for the course on certain Panasonic TVs these days, so its inclusion here, alongside Freeview



and analogue counterparts, comes as no surprise. Nor does VieraCast, the company's 'net streaming portal, although the latter has certainly expanded in usefulness since I saw it last.

As well as a proprietary YouTube video browser and Picasa support for viewing photos (which have both been available since day one), Eurosport and Bloomberg have joined the party – for sports and financial news respectively – and there are weather reports too. It's proof of the system's ability for expansion and, while it's not as open a technology as, say, Philips' Net TV (with its full web browser), I certainly look forward to seeing other applications emerge over the coming months. The Z1 is capable of adding those as they become available.

The media box's LAN (Ethernet) port also allows the set to connect to a home network to stream JPEG pictures and DivX video from a similarly DLNA-certified NAS box or

AV/CV

Product: 46in NeoPDP plasma with a superthin footprint and wireless HD media box

Position: Panasonic's flagship product. A 54in version also available

Peers: Pioneer KRP-500A; LG 50PS6000; Samsung PS50B650



→ Specifications

- HD Ready: YES up to 1080p24
- Digital TV tuner: YES and Freesat
- HDMI: YES 4 x HDMI v1.3a
- Component: YES 1 input
- PC input: YES 1 x VGA
- Sound: Detachable, 2 x 20W
- Resolution: 1920 x 1080
- Brightness (claimed): NA
- Contrast ratio (claimed): 2,000,000:1 (dynamic)
- Dimensions (w/o stand): (with speakers and wireless unit) 1,249(w) x 805(h) x 48.5(d)mm
- Weight: (with speakers) 25kg
- Features: WirelessHD; 600Hz Sub-field Drive Intelligent Frame Creation Pro; THX Certified Display; Viera Cast; Viera Link; Viera Image Viewer; AVCHD, DivX & JPEG playback; SD Memory card slot

The panel is thin because a lot of the functionality is in the set top box, seen here with wireless transmitter on top

computer. There's also an SDHC slot, which can handle AVCHD video stored on compatible memory cards. Weirdly, though, neither method can play MP3s. I have no idea why... Surely that's easier than DivX video? Anyone? Bizarre.

The ins and outs

Other socketry found on the media box includes four HDMI v1.3a ports (one of which is hidden under a front flap), a set of component jacks, and a couple of Scart in/outs (remember them?). There's also a common interface socket, but with Setanta Sports being the second-most talked about demise in June, there's little reason for its existence at present.

It is inside the box that you find, perhaps, the most interesting doohickeys. Panasonic has obviously afforded the Z1 its premium picture tech, as also found on the flagship P50V10 reviewed last issue. Firstly, it utilises the company's NeoPDP plasma technology, including 600Hz >

HCC Test card

HCC's test card has been designed to torture even the toughest screens...



A Grayscale

The rear pattern runs from 5% white to 100% black, and the P46Z1 had slight banding problems at around 60-70%, no matter what the settings

B Gold

Gold reproduction is a problem area for flatscreen TVs... usually. The Z1 displays shiny, gold objects with excellent realism

C Red

Plasma is far better at displaying true, deep reds than LCD, as the Z1 proves to great effect. The peppers and robot are both solid and rich

The cable-free society

HCC chats with the **WirelessHD Consortium**

Sending Full HD images and high-resolution audio over the airwaves, with nary a cable in sight, is a revelation. And the AV industry is so convinced in the technology's potential that it has banded together to form the WirelessHD Consortium, a global organisation to regulate the standards and specifications in order to provide certain consumer guarantees.

To earn the WirelessHD stamp of approval, kit, such as Panasonic's Z1 plasma TV, must meet certain guidelines, as Lianne Caetano, the Executive Director of WirelessHD, explains...

HCC: What is the WirelessHD Consortium and why was it formed?

Lianne Caetano: 'In 2005, a group of consumer electronics companies came together to discuss the optimal wireless technology options for home multimedia equipment. After thoroughly reviewing the common requirements, it became quickly understood that 60GHz wireless technology presented the best possible platform to address the growing bandwidth and application needs in home networking.

'In order to address this opportunity LG, Panasonic, NEC, Samsung, SiBEAM, Sony and Toshiba joined together to form the WirelessHD Consortium. In later years, they were joined by Broadcom, Intel and, more recently, Philips.'

HCC: What is the minimum specification required to be badged WirelessHD?

Lianne Caetano: 'WirelessHD has established a comprehensive compliance and interoperability

testing program available at authorised test centres. This compliance program provides consumers with confidence that their WirelessHD-enabled devices will comply with the standard and/or will interoperate with other WirelessHD devices, regardless of manufacturer.

'When a manufacturer decides to produce a product based on the WirelessHD standard, we provide them with two options. If they simply want to promote their product without the WiHD logo, they must pass the compliance test specification (CTS) parts one & two. If the manufacturer wishes to use the WiHD logo on their products, it must pass all three parts of the CTS.

'In other words, some products will be identified with the WiHD logo, while others will not, based on the preference of the manufacturer.

'Users will be able to identify which products have passed all three levels of our rigorous compliance and interoperability testing by looking for the WiHD logo. In either case, all will be based on a standard specification backed by some of the biggest names in the industry.'

HCC: As well as major brands adopting WirelessHD, is it possible that stand-alone accessories can comply with the standards?

Lianne Caetano: 'Absolutely. At this time, both LG and Panasonic are shipping their HDTVs with WirelessHD technology. In the fall, we anticipate more announcements from adaptor manufacturers. Adaptors provide consumers the ability to make their legacy wired equipment go wireless.'

HCC: With regular HD standards constantly changing, do your own standards change to suit? For

example, will you support 3D?

Lianne Caetano: 'WirelessHD must keep pace with innovation; in addition, we will expand our application set. Since January of this year, we have been working on the next revision of the standard. At this time, we anticipate that WirelessHD 1.1, which will be backward compatible to WirelessHD 1.0, will support enhanced audio/video capabilities including 120Hz, 3D, and deep colour, as well as 2 and 4K resolution. Additionally, we will have expanded data capability and plan to support high-speed data communications for mobile devices.'

HCC: And finally, can you see a future where all kit is wireless?

Lianne Caetano: 'Consumers inherently understand the value and benefits of wireless and it is important to bring them a high quality wireless alternative. I believe the majority of our devices in the home will operate with one another wirelessly in the future. However, I don't think we'll see wires go away entirely. At this point, a wire is still required for power!'

→ Earning the badge...



The key attributes of the WirelessHD specification include:

- High interoperability supported by major CE device manufacturers
- Highest quality, lossless HD video, audio and data transmission, scalable to future high-definition AV formats
- High-speed wireless, multi-gigabit technology in the unlicensed 60GHz band
- Smart antenna technology for reliable non-line-of-sight connections
- Secure communications with DTCP and HDCP over WirelessHD technology
- Device control for simple operation of consumer electronics products using the standard TV remote control
- Error protection, framing and timing control techniques for a quality consumer experience



Lianne Caetano
is Executive Director of the WirelessHD Consortium

**Z1?
You say...**

Jeremy Davidson:

It's a very good idea. Would I buy one? A big 'yes', but not at a premium. Other manufacturers should and will follow suit, they have to do so to make it a viable proposition. So bring it on but in a bigger size, say 65in or bigger.

Simon Kingsley:

The idea of wireless TVs is very good. My girlfriend, especially, is no fan of cable spaghetti! But if Panasonic is serious about selling the set, as well as the concept, then it has got off to a very bad start by telling everyone, 'Look! Premium TV and new technology! Too expensive for the likes of you!'

Steven Stanley:

I would like to think that WirelessHD will become commonplace as it will enable a more organic room setup. My friend was considering purchase of a WirelessHD TV due to the design of his front room, yet the current offers are prohibitively expensive.

Bobby X:

Looks like a great TV but I don't think it can match the top Pioneers for picture quality. At this price I expect it to beat the Pioneers.

William Fazo:

Give me less wires – our world is becoming wire-free.



The bolt-on WirelessHD receiver does upset the panel's aesthetic impact somewhat

processing for smoother motion, a natural colour engine and fast response (which is especially good for gaming, or so claims the brochure). This set is also, like the V10, THX-certified. Basically, it has a THX colour and gamma-balanced preset that ensures images during movie viewing are standardised – to great effect. But there's one, final, function that this specific panel uniquely has that is perhaps the most impressive of all... picture calibration!

I almost fell off my chair when I found the advanced picture settings. The Japanese manufacturer has never offered such precise control on its UK panels before, even though mainland Europe has had them on some set iterations. This time, however, we're honoured with gamma presets and individual RGB sliders (for gain), all of which allow the tweekers amongst us to have a good crack at calibrating the video performance if they're not happy with any of the presets; certainly a welcome step in the right direction.

As is picture performance per se. Black levels are, perhaps, not the Z1's strongest point – at times, deeply shadowed sequences don't quite deliver maximum depth – but there is an appreciative trade-off. Colours are great. Scrub that... The colours are exceptional! And the dynamic contrast ratio, as tested by the HCC Tech Labs, is an incredible 72,457:1.

Back to the colours though, they genuinely are superb, especially reds. This is definitely an area where plasma beats LCD about the head and toilet parts. Where bold red

objects, such as those found on Disney's CGI opus *Bolt*, can come across a tad orange with other TV technologies, plasma can display vivid, realistic hues, and the Z1 is incredibly proficient in this area. Its green rendering is masterful too. Basically, if you support Liverpool, next year's footie coverage will look amazing on this screen. Result!

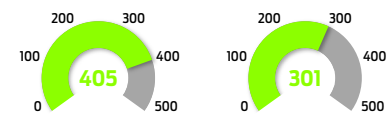
It'll sound fine too. Obviously, wafer-thin speakers are no match up against any 5.1 system, but I've not heard many superslim TVs that are better at creating a competent and beefy stereo soundstage.

So the only downside is essentially those black levels, but I'm not so sure that's such an issue. They're as good as those found on just about every other plasma TV on the market, and a darn sight better than on any CCFL-backlit LCD. The major argument would be that the picture quality of this, not inconsiderably pricey, TV is not as good as on a Pioneer Kuro. But then, a Kuro doesn't have WirelessHD. It doesn't have VieraCast, or certification for DLNA. Or THX. It doesn't come in a super-slim package. Oh, and a Kuro is no longer being made. That's fairly important.

To compare a Pioneer Kuro to the Panasonic TX-P46Z1 is like comparing a 1966 Alfa Romero Spider to a BMW 5 Series. Undoubtedly, the Alfa looks better and enthusiasts will boast about owning one, but the BMW has a swathe of modern advancements and you can buy the parts if it ever goes wrong. The Z1 is a big step forward in TV design. End of ●

→ Tech Labs

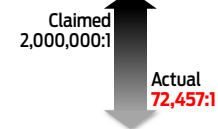
Power consumption: Watts



White screen: As you're driving a big PDP and media box, it's not surprising that consumption with a white 100IRE signal is perhaps significant

Powered: With our test sequence and full audio, power consumption averages an excellent 301W. Eco mode saves another 100W in a dark room

Contrast: ratio



Picture: In Normal mode the 9,982:1 contrast ratio is impressive enough, but in Dynamic mode the measurement leaps to 72,457:1 – still nowhere near the claimed 2m:1. Luminance is high for plasma at 30.31fl

Colour temp: kelvin



Presets: Warm offers a very accurate balance and is our preset of choice. Full manual control of RGB delivers a perfect 6500K. **Normal:** 6,893K **Warm:** 6,539K **Cool:** 9,210K

HCC VERDICT

Panasonic TX-P46Z1
£4,300 Approx

Price check: www.techradar.com/613213

Highs: Wireless full, unabridged high-def video; superslim set; Freesat HD tuner;

Lows: Ugly WirelessHD receiver; black levels are a touch limited

Performance: 1 2 3 4 5

Design: 1 2 3 4 5

Features: 1 2 3 4 5

Overall: 1 2 3 4 5