



LUX REVIEW

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Breakthrough lamp hits all the numbers

The GU10 lamp has a bad name for quality. But an LED version from the inventors of the format could change all that. **Ray Molony** reports

Of all the Wrongs Inflicted By The Lighting Industry On An Unsuspecting Public, the halogen lamp with a GU10 base has to be near the top of the list.

When it was launched in 1997 by Sylvania, the mains source was a major technical innovation. Installers loved it, because it obviated the need for a transformer and made lamp and luminaire combinations much cheaper. But a tsunami of poor quality copies followed and the GU10 – as it has been dubbed – rapidly got a bad name.

With the advent of LEDs, the format has been given a new lease of life. But the quality of the LED versions has, for the most part, been deplorable. For a start, many aren't the same size as the halogen originals, and the ones that are have dismal outputs.

Splodgy and inconsistent

The worst aspect of most LED GU10s in our view is beam quality – they're splodgy and inconsistent, with green or blue striations at the edges. Ugh!

So when Sylvania, the originator of the format, came to create an LED version of the GU10, the engineers at the company's labs in Tienen, Belgium, must have felt the pressure of history.

According to tests we have conducted on the new lamp – the Hi-Spot RefLED ES50 – they have delivered. In spades.



The first thing you notice is the quality of the heatsink compared with most GU10s. It's like comparing the engine of a BMW with a tricycle. But best of all is the beam – so consistent and uniform you could draw a line around it.

Our lab tests made us love it even more. The output we measured, 344 lm, was as near as dammit that of a standard halogen output of 350 lm.

An LED GU10 that stacks up

So it really is a direct LED replacement for standard GU10 halogen lamps – the first one we've seen that stacks up in the lab.

We measured the peak intensity at 742cd – 142cd more than Sylvania claims for this, the 40-degree wide flood version.

The colour rendering index is good at 80, but remember that, like most LED lamps, it has a spike in the blue, with weaker red.

It's LED, so energy costs are low. In our test, efficacy was 46.5 lm/W compared with a paltry 7 lm/W for the halogen. Life expectancy is in another league: nominal life is 25,000 hours compared with 4,000 hours for the halogen – and in practice, few halogen GU10s hang on until 2,000 hours.

Power factor is a much overlooked metric for lamps, but it is important because it affects the total electrical loading of the installation. We measured a power factor of 0.78 which is the highest we've seen in this class. A dimmable version is promised later this year. 

WHERE WE DID THE TESTS

The *Lux Review* benchtest was carried out by Lux-TSI at its UL-approved lab in Bridgend, Wales. All the company's goniophotometric, goniospectroradiometric and spectroradiometric equipment is calibrated and traceable to National Measurement Institute standards.

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LED V HALOGEN: HOW THEY STACK UP

	Sylvania GU10 HI-Spot RefLED ES50	Standard 50W Halogen
Power (W)	7.40	50
Voltage (V)	230.65	230
CCT (°K)	3,144	2,700
Luminous Flux (lumens)	344	350
Efficacy (lm/W)	46.5	7
Beam Angle (°)	42.2	50
Peak Intensity (cd)	742.6	500
CRI	80	100
Life	25,000	4,000
Price	c US\$30	Branded US\$5



LUX REVIEW RECOMMENDS Havells Sylvania Hi-Spot RefLED ES50

BASE GU10

OUTPUT 344 lm

POWER 7.4W

CRI 80

EFFICACY 46.5 lm/W

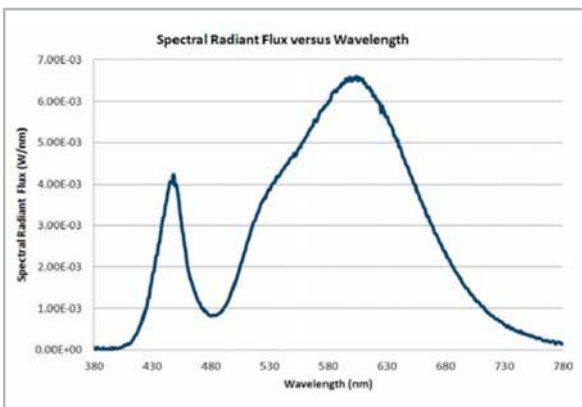
INTENSITY 743cd

LIFE (nominal) 25,000 hours

OUR VERDICT



We love this lamp. It's the first true LED replacement for GU10 halogen that we've seen (and we've seen a few). It hits all the numbers and the beam quality is awesome. A stunning achievement that we recommend without reservation.



The sources are LED, so there is an output spike in the blue