

Case Study

Future Family Home, Channel 4



This project achieved
80%
energy
savings



Project

Future Family Home - Channel 4

PhotonStar™ Products

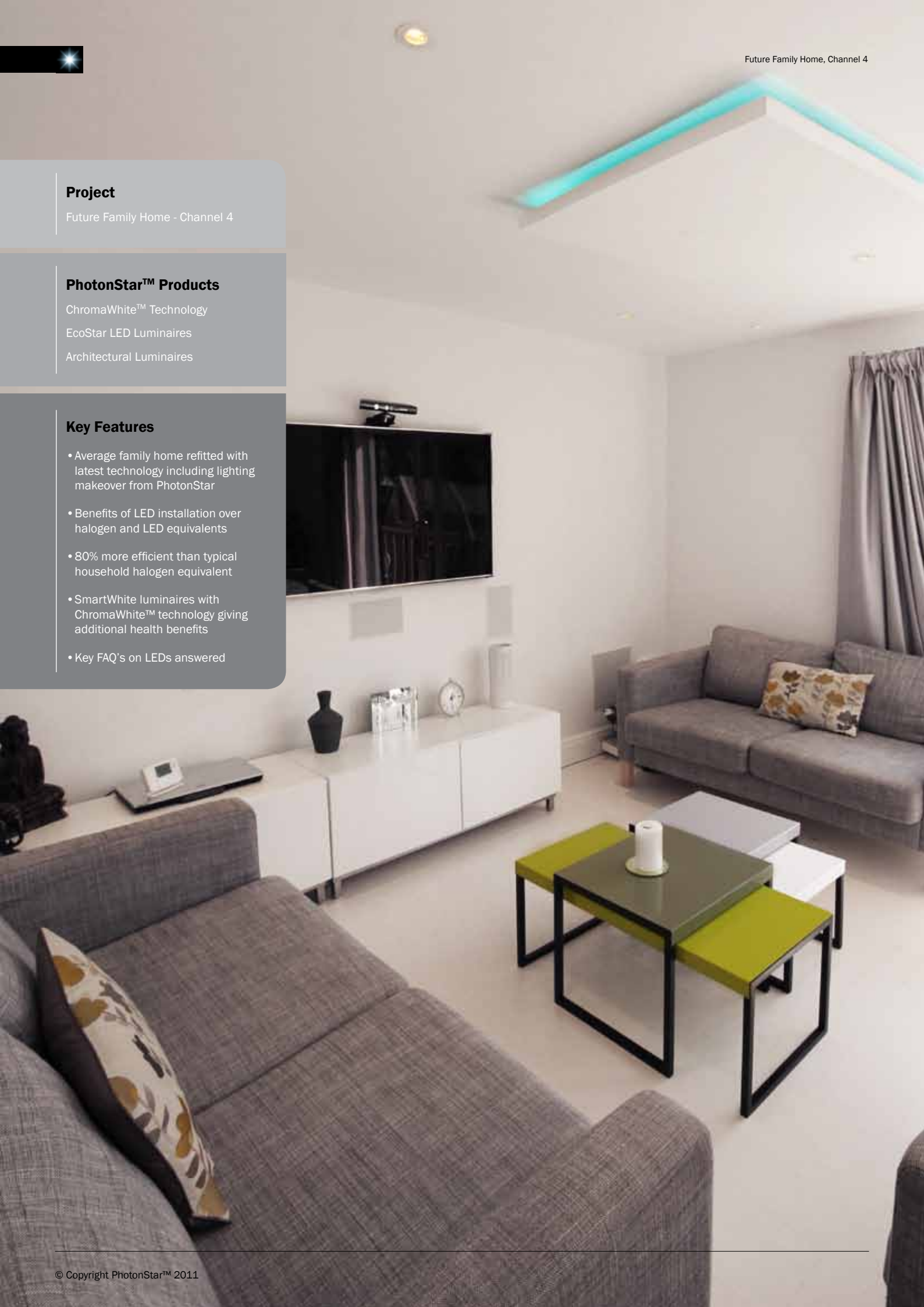
ChromaWhite™ Technology

EcoStar LED Luminaires

Architectural Luminaires

Key Features

- Average family home refitted with latest technology including lighting makeover from PhotonStar
- Benefits of LED installation over halogen and LED equivalents
- 80% more efficient than typical household halogen equivalent
- SmartWhite luminaires with ChromaWhite™ technology giving additional health benefits
- Key FAQ's on LEDs answered



application

Made by Two Four Productions for Channel 4, with co-funding from E.ON, one of the UK's leading energy suppliers, Future Family sees an average family home refitted with the latest technology. Following on from their industry research, Two Four Productions discovered that PhotonStar are leading the way in hi-tech next generation lighting and invited them to supply an innovative, affordable, low energy solution for the Future Family House. A UK based designer and manufacturer of high quality performance ecolighting products, PhotonStar have vast experience in the industry having completed high-end installation projects with household names including Google, Porsche showrooms, Dorchester Hotels, and the Architects offices themselves in BDP, London.

The series, the first brand-funded commission from Channel 4's Specialist Factual team, includes futuristic kitchen

appliances, hi-tech entertainment technology, as well as alternative sources of power and heating often still at a conceptual stage. Future Family also looks at how new developments can transform the way we live, from how we work and play, to relaxation, how we power and heat our homes, as well as eating and staying healthy. The series focuses on the need for future energy efficiency, environmental-responsibility and saving time and money, whilst also highlighting future trends in technology and how cost effective they are in the real world for a real family.

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solution



Future family featured three different product ranges from PhotonStar:

ChromaWhite™ Biodynamic Lighting

PhotonStar supplied the latest in biodynamic lighting in selected areas in the house to boost alertness, and help to emulate a summer daylight cycle i.e. Blue light to help wake in the morning, cool light to aid focus during the day and warm light to relax in the evening. SmartWhite luminaires feature advanced ChromaWhite™ technology which is at least 80% more efficient than equivalent halogen lamps and are also colour tuneable to emulate both changing daylight and popular traditional household lighting. This colour tuneability not only permits more flexible use of space, but importantly increases wellbeing and facilitates natural sleep wake cycles. Meanwhile the colour quality of the light is higher than other LED and CFL lights (Ra 90-96). This means that the light that helps you wake up in the morning also enables you to see the true colour of your clothes and makeup. Operating with the control system in the house, the colour tuning can happen automatically with the minimum of fuss to be homeowner. It has been developed to be one of the most efficient and longest lasting light fittings available today.

For more information visit our dedicated website www.chromawhiteled.com

EcoStar LED luminaires

In the bedroom and corridor areas of the house, PhotonStar supplied highly efficient EcoStar luminaires. Unlike LED lamp replacements, the amount and colour of the light is genuinely equivalent to a 50W halogen, and yet it only uses a fifth of the energy. Made in the UK, the products are an example of some of the best LED lighting available today—as recognised by the many industry awards that it has won. These fittings are simple to install, with dimmable options, and can be purchased from electrical wholesalers across the UK.

For more information and to find your nearest wholesaler please visit our dedicated EcoStar website www.ecostar.photonstarlighting.co.uk

Architectural LED luminaires

PhotonStar also design and manufacture a wide range of luminaires for the specification market - aimed at lighting designers, architects and consultants. These products are featured in many high end installations all over the world including Dorchester Hotels, Porsche showrooms, Cathay Pacific (a first-class passenger lounge at Heathrow Airport), and even in the offices of architects themselves such as BDP in London.

In the kitchen area, our Vespertine Adjustable with the Mercury 810 light engine was installed providing a modern feel with good quality light in an adjustable square illuminating the work surfaces evenly. The sitting room featured our laser micro adjustable accent fittings with colour changing RGB light engines in order to emulate the daylight cycle as explained, and enhance alertness during the day and relaxation during the evenings.

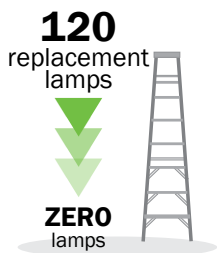
Our architectural fittings have a range of options, including being supplied with a biodynamic (white colour tuneable) light engine, or select from high output, best efficiency or most cost effective. All fittings are covered by a UK warranty with full technical support from our Hampshire based offices.

For more information visit www.photonstarlighting.co.uk

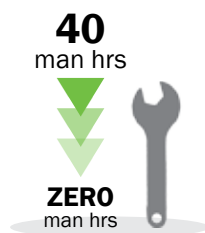
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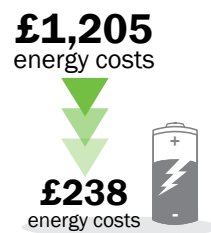
solution



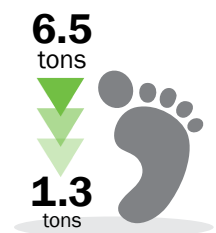
maintenancecost*



maintenancecost*



energycost*



CO₂emitted*

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FAQs

How much money can I save by switching to LEDs?

Although the initial costs are higher for LED lights, by comparing the long term usage next to their halogen equivalents you can see the following savings with the EcoStar (as installed in the future family house):

After 2 years: saving £630

After 3 years: saving £1563

After 4 years: saving £2763

After 5 years: saving £4236

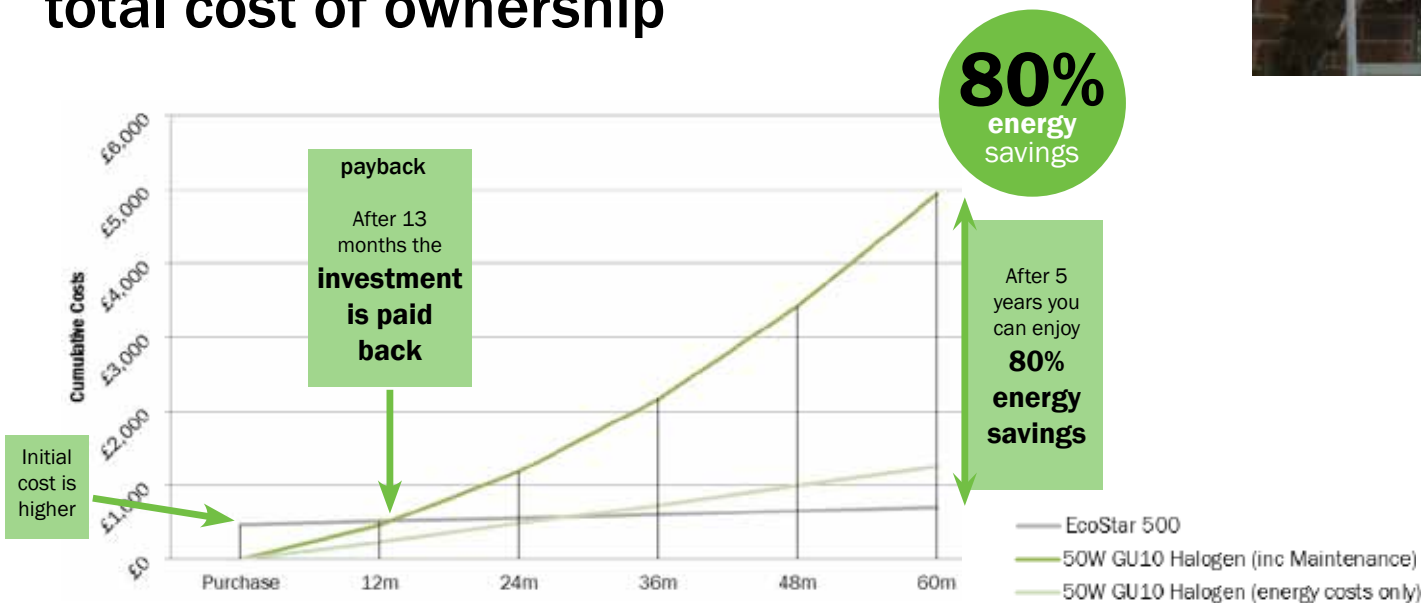
So you can be enjoying 80% energy savings after just 5 years which can also be seen on the graph below – the lights have covered all of their initial costs after only 13 months!

Not only do you benefit from huge savings on your electricity bill, you can avoid the dangerous and irritating task of constantly replacing your lights. This is obviously hugely beneficial, especially for the elderly or those with disabilities when the lights are in hard to reach places and maintenance can be a major inconvenience. The calculations back this up as in this example 120 lamps would need replacing in the same lifetime of 1 EcoStar fitting - that's 2 inconvenient lamp replacements every single month!

EcoStar products offer the end user the best possible savings when considering installation and running costs. Extremely low energy consumption and minimal maintenance mean that they are not only cost effective to run, but last much longer than halogens.



total cost of ownership



FAQs

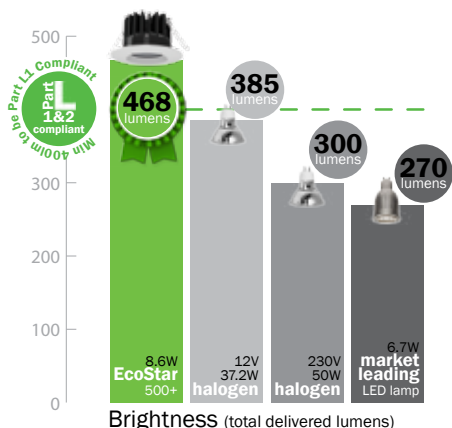
Why don't I just use cheaper LED lamps from B&Q instead?

Although a higher initial purchase price may put off customers, the long term benefits are clear to see. The EcoStar LED fittings have a far superior quality of light that stays consistent over time - even when compared to alternative LED products.

The cheaper LED lamps from places such as B&Q tend to have extremely poor colour rendering which refers to the quality of light. EcoStar fittings easily out-perform current retrofit LED lamps. The small physical size of an LED based lamp means that the total light emitted is concentrated in a much tighter beam angle, affecting the lit appearance of a space.

EcoStar products have excellent light output and a wide beam angle, resulting in fewer fittings being required for an installation when compared to current retrofit LED lamp based alternatives. If we use the 11 EcoStar fittings in the future family house corridor as another example, 15 market leading LED lamps would be needed in order to achieve the same output. We can see from the following graph that although the purchase price is considerably higher, you would still be making the following savings, and with a far superior quality of light:

After 3 years: £168
After 4 years: £473
After 5 years: £829



Can you dim them?

Yes, all of our EcoStar range come with dimmable versions available. LED dimming does not result in a loss of efficiency. During dimming, the LED lights are still operated at the same voltage and current as during full light output. It may even increase the already long life expectancy due to the reduction of the operating temperature of the LED.

When do I need to replace the LEDs?

Due to their incredibly long lifetime (50,000 hours), LEDs offer a 'fit and forget' solution. LEDs do not suffer from 'catastrophic failure', meaning that as they come to the end of their life, they do not burn out or blow up - they gradually fade out. This gives you no nasty shocks or inconveniences of a bulb blowing and plenty of warning before a change is needed. LED fittings mostly need replacing when they fade to less than 70% of their full brightness.

*Assumptions over a 5 year period: 0.544 CO₂ per kWh, 12 hours use per day, 10p/kWh, lamp replacement cost £1.00, 3 lamp replacements per hour (20 mins per lamp change), anticipated annual lamp replacement cost increase 10%, anticipated annual labour cost increase 4%, anticipated annual energy cost increase 8.5%, EcoStar wholesale price £35 +VAT

FAQs

Aren't LEDs blue?

When LEDs first appeared on the market they were renowned for their blue tones and their harsh blue light. A bit like Compact Fluorescents, LEDs couldn't match the warm 'feel' of tungsten bulbs. Over recent years huge advances in technology have led to a new generation of LEDs. They now provide vivid directional lighting that's bright enough to light our homes, workplaces and much more. New generation of LEDs offer extensive colour choice and provide truer, brighter colour.

Will they take an age to turn on like most low energy bulbs?

In the past, eco-friendly lights have not earned the best reputation. The first CFL products were extremely slow to reach full brightness – you would usually have been finished in that room before they'd even turned on fully! They also suffered much shorter lifetime than previously claimed as they couldn't cope with constantly being turned on and off.

LEDs suffer none of these flaws. Using only half the amount of energy as the alternatives, LEDs can produce the same amount of light as an incandescent bulb and switch on to full brightness in a microsecond. An Example of LEDs switching on quickly is the brake lights on a car which are usually LEDs due to their size and the fact that they are instant on.

When the car in front hits their brakes, you can see it straight away and prevent an accident occurring.

Where do I go to get the EcoStar products for my house?

Please contact your nearest wholesaler. A full list of Stockists can be found on our website at www.ecostar.photonstarlighting.co.uk/aboutus/distributors



product focus



Part L
1&2
compliant



EcoStar 500+

Professional LED Downlights
- Wholesale Range

Illuminance comparable to a
35W LV or 50W GU10 halogen

Rich warm white light output to
match halogen sources

Easy to install - driver connects
straight to mains.

Ra80+ colour quality - as called
for by the CIBSE Code for Interior
Lighting

IP65 sealed, suitable for use in
wet areas

Designed to comply with UK
Building Regulations parts B, C,
E, L & P

In this application, delivered
lumens of 468lm (L_{100}) and
efficacy of 47lm/cW at full power



+44 (0) 845 519 7717

www.ecostarphotonstarlighting.co.uk



1 Part L & 2 compliant

smartwhite 730



colour tuneable

CeilingStar ED

With SmartWhite 730 light engine featuring ChromaWhite™ Technology - Specification Range

- LED downlight to replace 35W and 50W halogen equivalent
- A discreet narrow trim allowing superior output.
- Die-cast aluminium construction
- Lifetime (L₇₀ F10) of 50,000hours
- In this application, delivered lumens of 720lm and efficacy of 60.8lm/cW at full power

CE
F
IP 65
NO UV
NO IR

+44 (0) 2381 230 381
www.chromawhiteled.com
www.photonstarlighting.co.uk





Part
1&2
compliant

mercury
810



Vespertine Adjustable

With Mercury 810 light engine
- Specification Range

A recessed high output LED
downlight to replace 50W
halogen equivalent

A square trim and darklight baffle
20° tilt on one plane

Lifetime (L₇₀ F10) of 50,000hours

In this application, delivered
lumens of 663lm (L₁₀₀) and
efficacy of 62.5lm/cW at full
power



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